

Service Manual

QUARTZ Synthesizer AM/FM
Stereo Radio with Double Cassette
Tape Deck and Record Player

Stereo Music System
SG-D16

Color

(K)... Black Type



Color	Area
(K)	[M] U.S.A.

System Name	Unit
SG-D160	Music Center, SG-D16
	Speaker, SB-D160 (Made in MEP)
SC-3016D	Music Center, SG-D16
	Speaker, SB-226 (Made in MEP)
	Ruck, SH-226 (Made in MEP)

SPECIFICATIONS

■ AMPLIFIER SECTION

Input sensitivity	
CD	132mV (250mV, IHF '66)
Input impedance	
CD	22 kilohms
Graphic equalizer	100Hz, 1kHz, 10kHz ±10dB
Load impedance	6~16 ohms

■ FM TUNER SECTION

Tuning system	Quartz synthesizer
Frequency range	87.9~107.9MHz (100kHz step)
Sensitivity	25.2dBf (5μV, IHF '58)
Total harmonic distortion	
1kHz	0.3% (MONO), 0.5% (STEREO)
S/N	
MONO	65dB
Stereo separation	
1kHz	35dB
Antenna terminals	75 ohms (unbalanced)

■ AM TUNER SECTION

Frequency range	530~1720kHz (10kHz step)
Sensitivity (for 50mW)	250μV/m (1000kHz)

■ CASSETTE DECK SECTION

Deck system	Auto stop double cassette system
Track system	4-track, 2-channel
Heads	
playback (TAPE 1)	Solid permalloy head
record/playback (TAPE 2)	Solid permalloy head
erase	Double-gap ferrite head
Motors	DC servo motor
Recording system	AC bias
Erase system	AC erase
Tape speed	4.8cm/sec. (1-7/8 ips)
Frequency response	
NORMAL	30Hz~15kHz
S/N	50dB (A-WTD)
Wow and flutter	0.15% (WRMS)
Fast Forward and Rewind Time	Approx. 150 seconds with C-60 cassette tape

■ PHONO SECTION

Player system	Belt Drive Automatic Turntable
Phono motor	DC servo motor
Turntable size	28cm (11")
Turntable speeds	33-1/3 rpm, 45 rpm
Cartridge type	ceramic (Part No. EPC-13STH)
Stylus	sapphire (Part No. EPS-41ST)
Stylus pressure	5.5g

Panasonic®

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Carolina, Puerto Rico 00630

■ SPEAKER SYSTEM

Type	1-Way speaker system
Speakers	16 cm cone type
Impedance	8 ohms
Input power	6 W (music)
Output sound pressure level	88 dB/W (1.0 m)
Dimensions (W × H × D)	209 × 320 × 146 mm
Weight	2.1 kg (4.6 lb.)

■ GENERAL

Power consumption	30 W
Power supply	AC 120 V, 60 Hz
Dimensions (W × H × D)	430 × 320 × 359 mm (16-19/32" × 12-19/32" × 14-1/8")
Weight	5.4 kg (11.9 lb.)

Specifications are subject to change without notice for further improvement.

Weight and dimensions shown are approximate.

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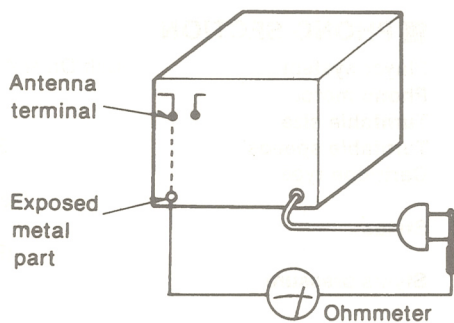
■ SAFETY PRECAUTION (This "safety precaution" is applied only in U.S.A.)

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

● INSULATION RESISTANCE TEST

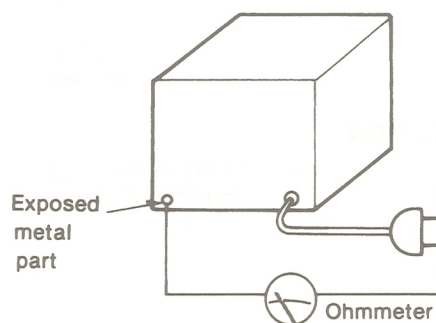
1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between $3M\Omega$ and $5.2M\Omega$ to all exposed parts. (Fig. A) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. B)

Note: Some exposed parts may be isolated from the chassis by design. These will read infinity.



(Fig. A)

Resistance = $3M\Omega$ — $5.2M\Omega$



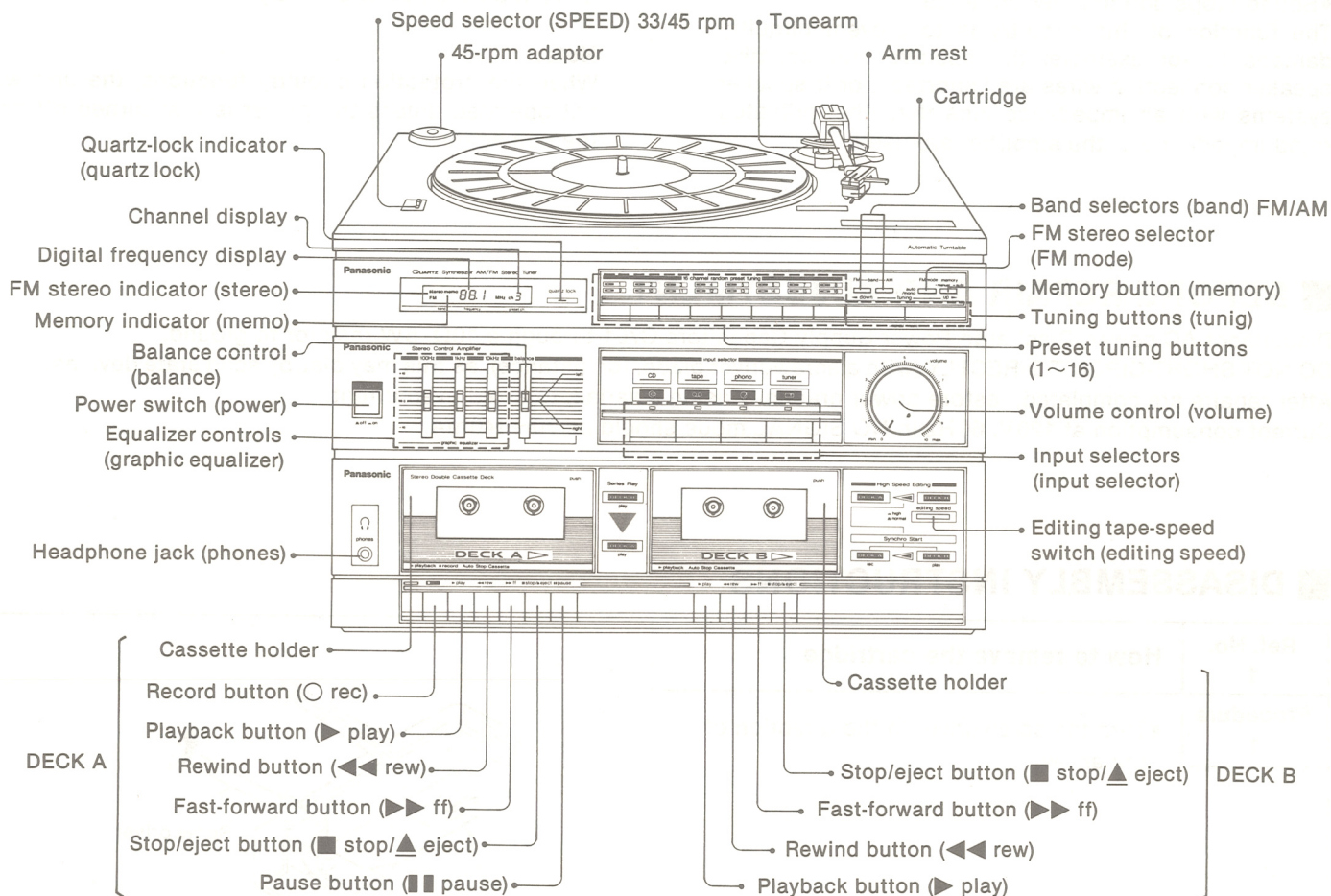
(Fig. B)

Resistance = Approx ∞

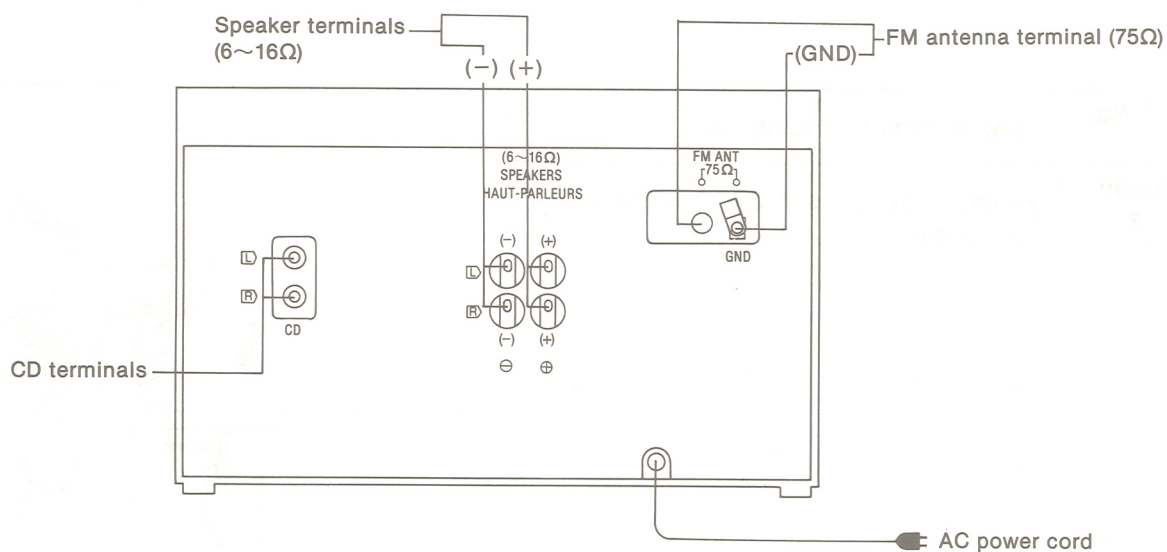
4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

LOCATION OF CONTROLS

•Front Panel



•Rear Panel



■ PROTECTION CIRCUITRY

The protection circuitry may have operated if either of the following condition is noticed:

- No sound is heard when the power is turned on.
- Sound stops during a performance.

The function of this circuitry is to prevent circuitry damage if, for example, the positive and negative speaker connection wires are “shorted”, or if speaker systems with an impedance less than the indicated rated impedance of the amplifier are used.

If this occurs, follow the procedure outlined below.

1. Turn off the power.
2. Determine the cause of the problem and correct it.
3. Turn on the power once again.

Note:

When the protection circuitry functions, the unit will not operated unless the power is first turned off and then on again.

■ BEFORE REPAIR AND ADJUSTMENT

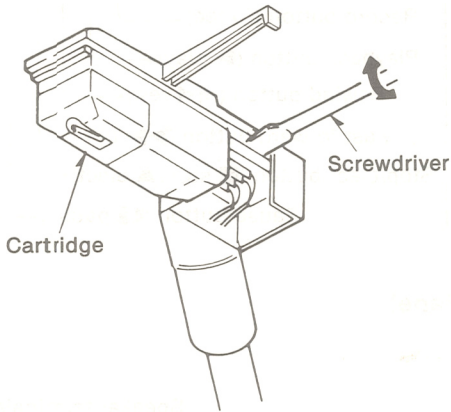
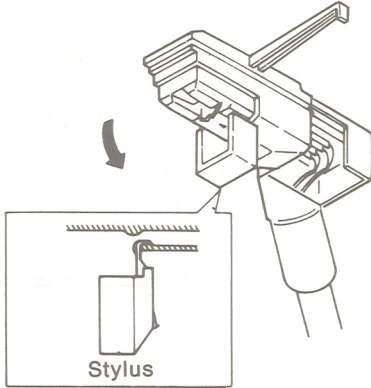
Disconnect AC power, Discharge Power Supply Capacitors C701 through a 10Ω, 5W resistor to ground.

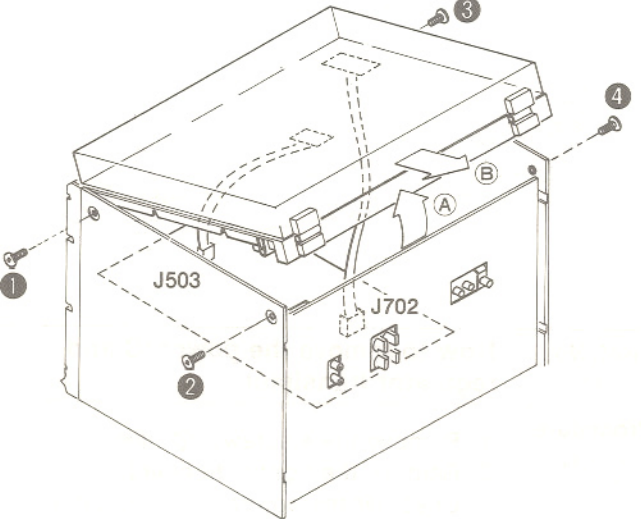
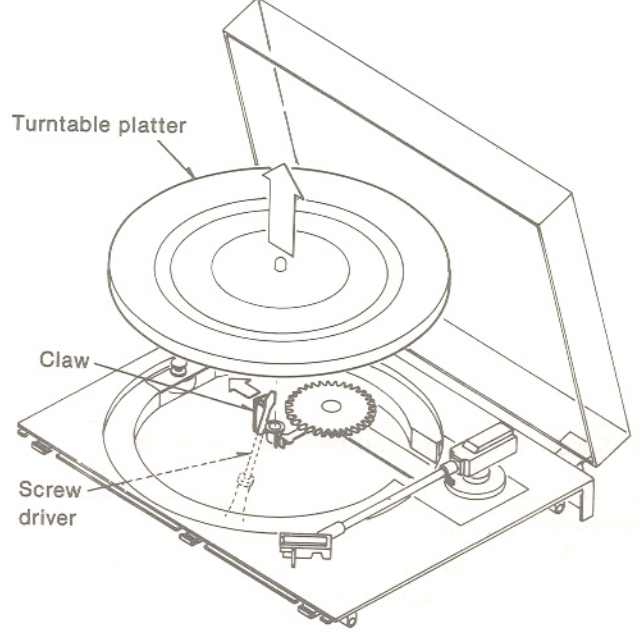
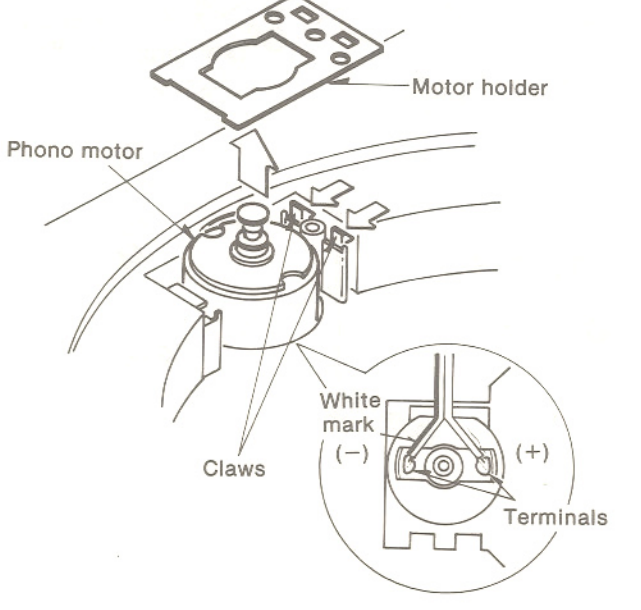
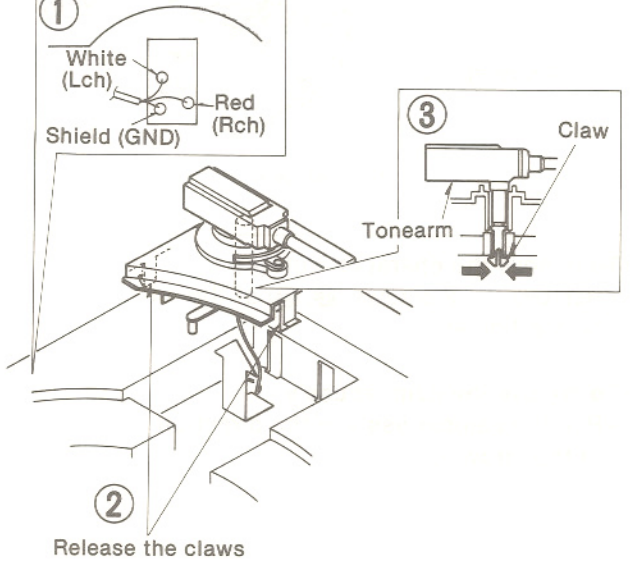
DO NOT SHORT-CIRCUIT DIRECTLY (with a screwdriver blade, for instance), as this may distroy solid state devices.

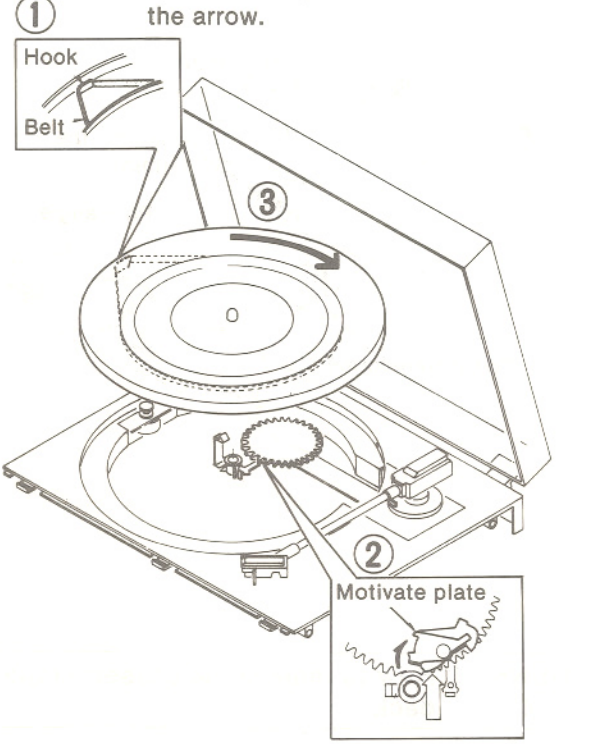
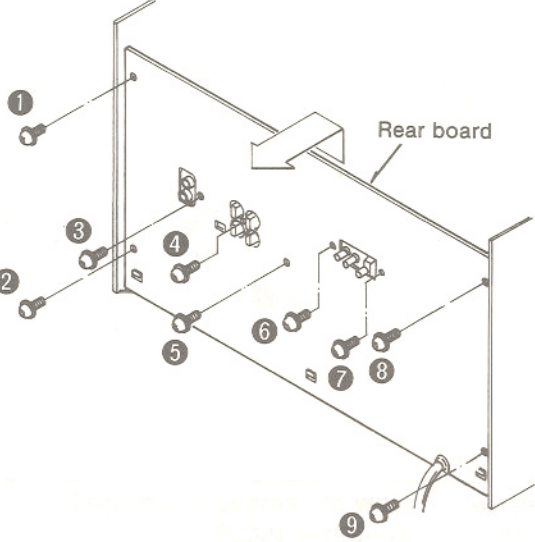
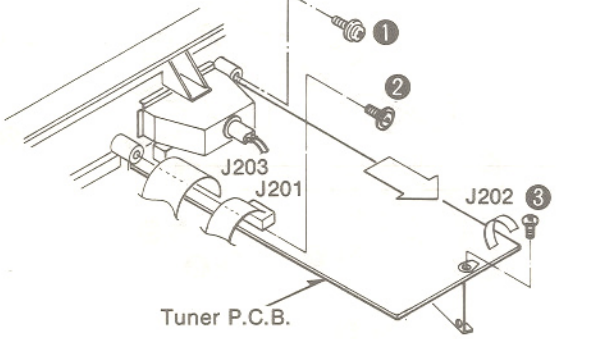
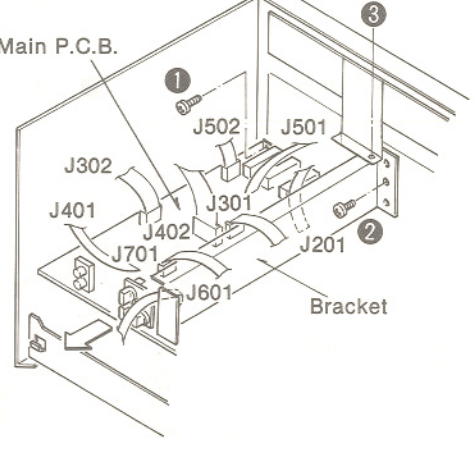
After repairs are completed, restore power gradually using a variac, to avoid overcurrent.

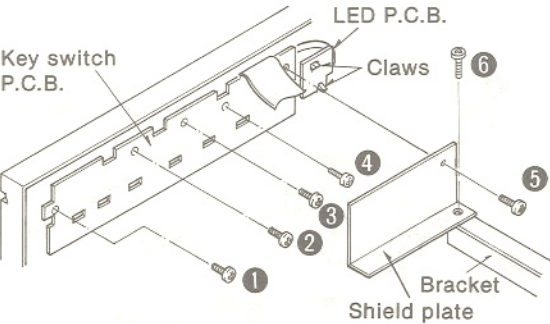
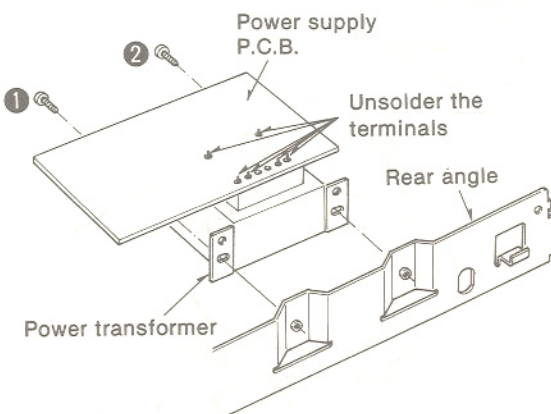
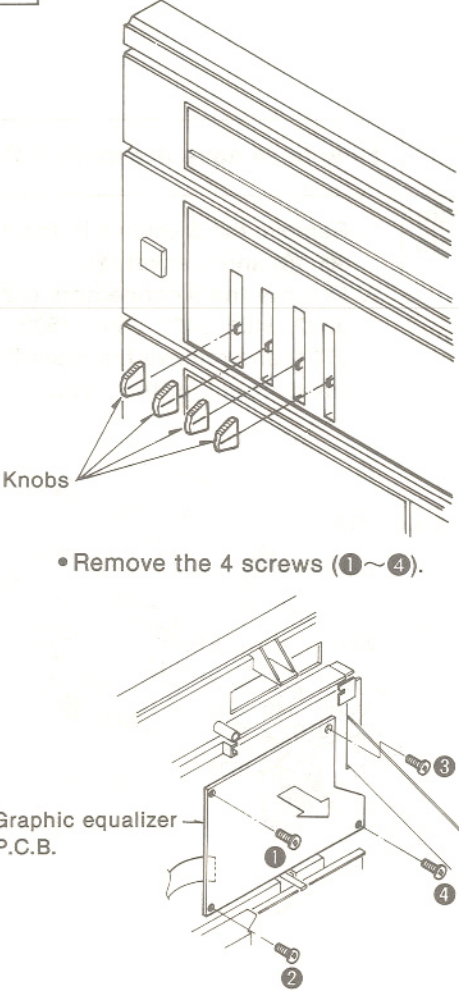
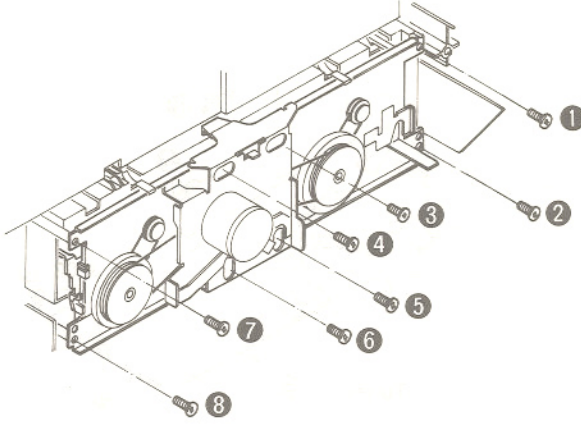
Current consumption at 120V, 60Hz in NO SIGNAL mode should be 70~140mA.

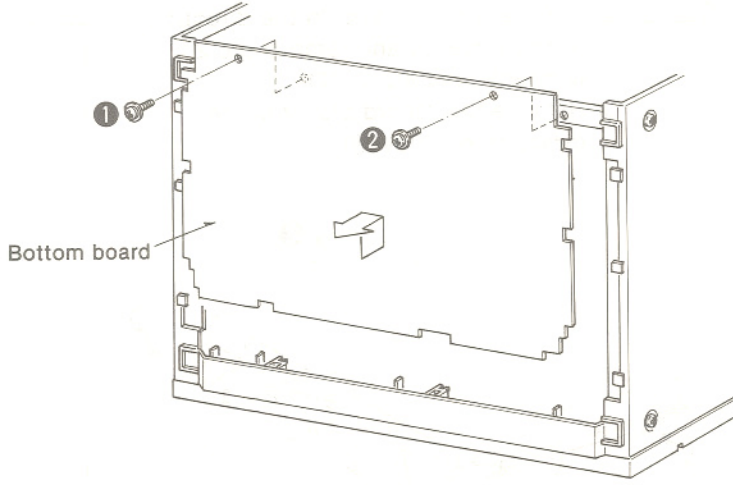
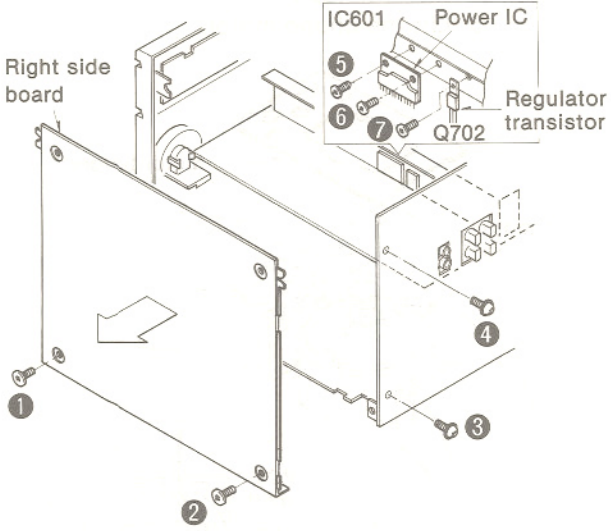
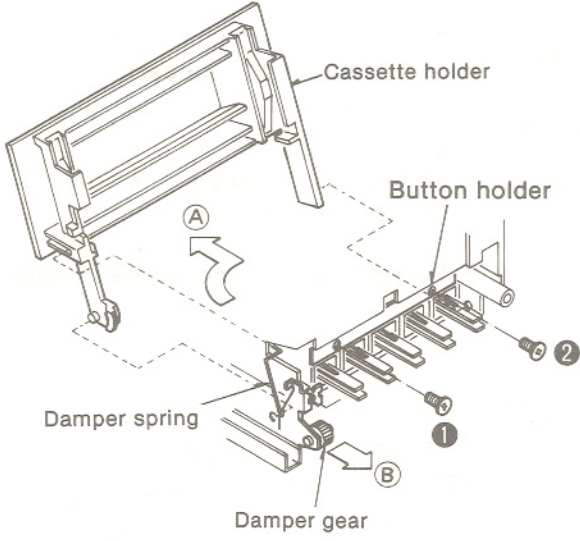
■ DISASSEMBLY INSTRUCTIONS

Ref. No. 1	How to remove the cartridge	
Procedure 1	• Turn the screwdriver in the direction of the arrow.	
Ref. No. 2	How to remove the stylus	
Procedure 2	• Remove the stylus in the direction of the arrow.	

Ref. No. 3	How to remove the record player	Ref. No. 4	How to remove the turntable platter
Procedure 3	1. Remove the 4 screws (①~④). 2. Lift the record player in the direction of the arrow ⑤ and remove the 2 connectors (J503, J702). 3. Remove the record player in the direction of arrow ⑥. 	Procedure 3 → 4	1. Release the claw by screwdriver from under side. 2. Lift the turntable platter. 
Ref. No. 5	How to remove the phono motor	Ref. No. 6	How to remove the tonearm
Procedure 3 → 4 → 5	1. Unsolder the terminals of the phono motor. 2. Release the 2 claws and remove the motor holder. 3. Lift the phono motor. 	Procedure 3 → 6	1. Unsolder the 3 leads. 2. Release the 2 claws and remove the tonearm base in the direction of the arrow. 3. Release the claw and lift the tonearm. 

Ref. No. 7	How to install the turntable platter	Ref. No. 8	How to remove the rear board
Procedure 3 → 4 → 7	1. Fix the belt to the hook. 2. Set the motivate plate in the direction of the arrow. 3. Install the turntable platter and turn the turntable platter in the direction of the arrow. 	Procedure 3 → 8	1. Remove the 9 screws (①~⑨). 2. Remove the rear board in the direction of the arrow. 
Ref. No. 9	How to remove the tuner P.C.B.	Ref. No. 10	How to remove the main P.C.B.
Procedure 3 → 9	1. Remove the 3 screws (①~③). 2. Remove the tuner P.C.B. in the direction of the arrow. 	Procedure 3 → 8 → 10	1. Remove the 3 screws in main P.C.B. (①, ②) and bracket (③). 2. Remove the 9 connectors (J201, J301, J302, J401, J402, J501, J502, J601, J701) and remove the main P.C.B. in the direction of the arrow. 

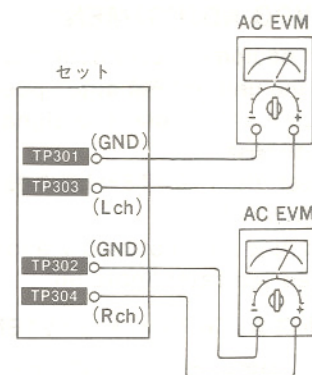
Ref. No. 11	How to remove the key switch P.C.B.	Ref. No. 13	How to remove the power transformer
Procedure 3 → 11	1. Remove the 6 screws in key switch P.C.B. (①~⑤) and bracket of main P.C.B. (⑥). 2. Release the 2 claws.	Procedure 3 → 13	• Remove the 2 screws (①, ②). • Unsolder the terminals of the power transformer.
			
Ref. No. 12	How to remove the graphic equalizer P.C.B.	Ref. No. 14	How to remove the cassette tape deck
Procedure 3 → 9 → 12	• Pull out the 4 knobs.	Procedure 3 → 6 → 14	1. Open the cassette holder. 2. Remove the 8 screws (①~⑧). 3. Remove the 3 connectors (J301, J302, J402).
			

Ref. No. 15	How to remove the bottom board	Ref. No. 17	How to remove the power IC and regulator transistor
Procedure 3 → 15	1. Remove the 2 screws (①, ②). 2. Remove the bottom board in the direction of the arrow.	Procedure 3 → 17	1. Remove the 4 screws (①~④). 2. Remove the right side board. 3. Unsolder the power IC or regulator transistor. 4. Remove the 3 screws (⑤~⑦). • When mounting the power IC or regulator transistor. Apply silicone compound (SZOYG6260) to the rear side of power IC or regulator transistor.
			
Ref. No. 16	How to remove the cassette holder	Procedure 3 → 16	
		• To remove the operation buttons • Remove the 2 screws (①, ②) of the button holder. • To remove the damper ass'y • Pull the damper ass'y in the direction of the arrow B.	

RECORDING BIAS ADJUSTMENT (DECK A)

1. Test equipment connection is shown in figure.
2. Insert the normal tape.
3. Press the record and pause buttons.
4. Minimize the input level control and adjust **VR355** so that the output between **TP301** (L-CH) {**TP302** (R-CH)} and **TP303** (L-CH) {**TP304** (R-CH)} is within the standard.

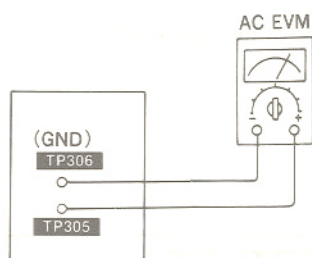
DECK A Standard value: 4.0~4.5 mV



ERASE CURRENT ADJUSTMENT (DECK A)

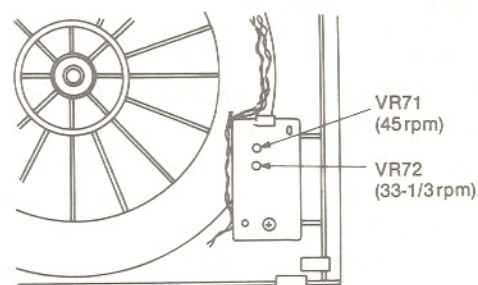
1. Test equipment connection is shown in figure.
2. Insert the normal tape.
3. Press the record and pause buttons.

DECK A Standard value: 70 ± 5 mV



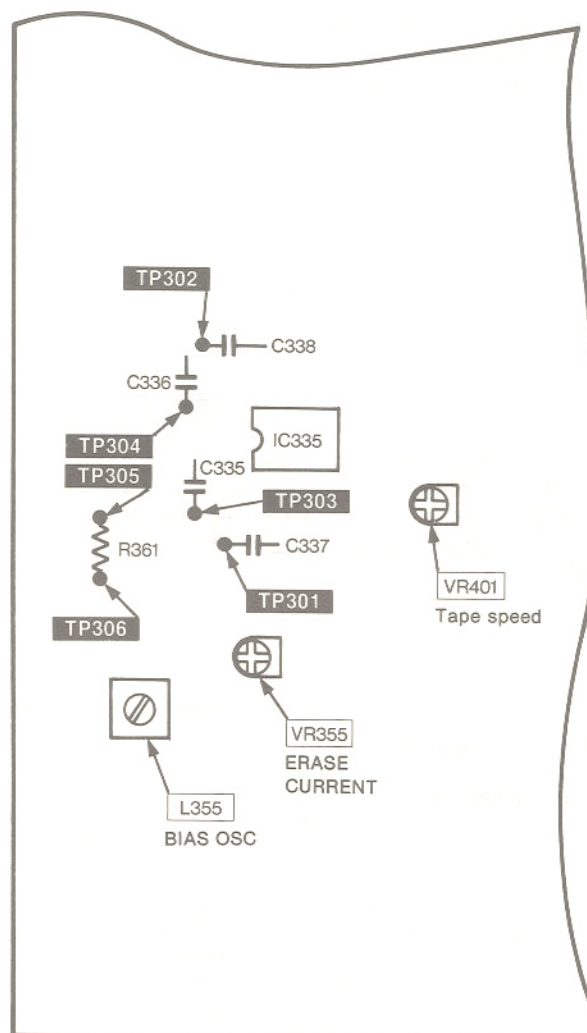
ROTATING SPEED ADJUSTMENT

1. Set the speed selector to "33".
 2. Turn the power switch "on" and press the start button.
 3. Adjust **VR72** so that the turntable platter rotates at the rated speed. (33-1/3rpm)
 4. Set the speed selector to "45".
 5. Adjust **VR71** so that the turntable platter rotates at the rated speed. (45rpm)
- Note:** Be sure to adjust 33-1/3rpm first.

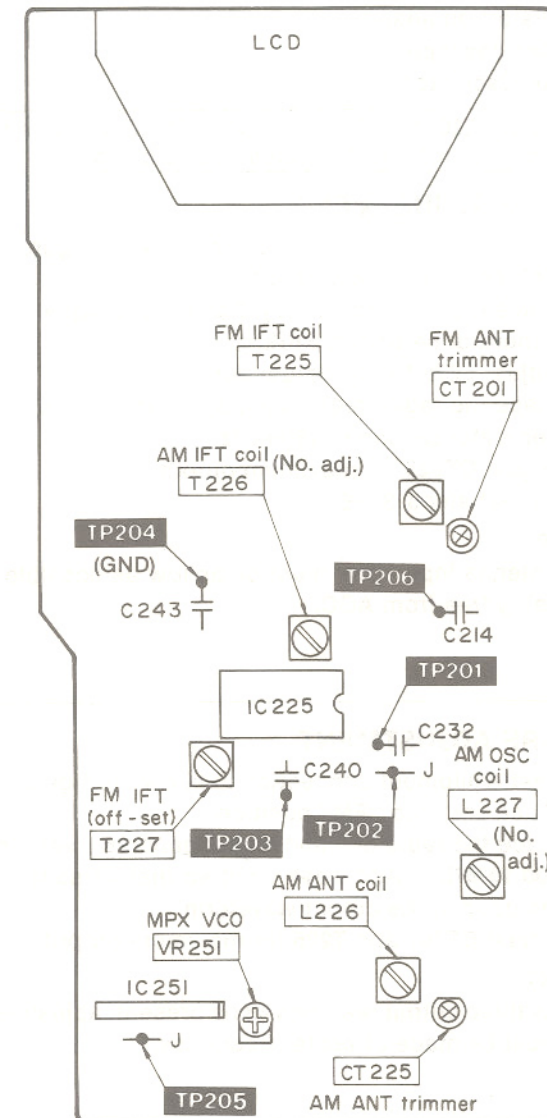


ADJUSTMENT POINTS

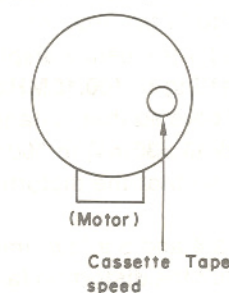
• Main P.C.B.



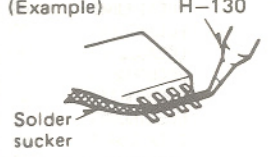
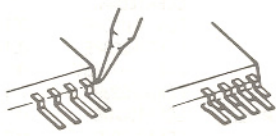
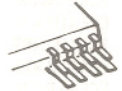
• Tuner P.C.B.



• Tape Motor (DECK A, B)



■ HOW TO REPLACE IC'S (Small outline type)

Replacing procedure			Cautions
1	Reduce the amount of solder on each pin of the integrated circuit by use of a solder sucker.	(Example) H-130 	- Recommended tool Special soldering iron * H605M and H-130. * H605E and H-130. - Do not touch the soldering iron to the area for a long time. It may otherwise cause removal of the print foil. - When shifting the pin upward, do the job quickly while the solder is melting. If the solder is hard, it may cause removal or breakage of the print foil. - When using a pencil type soldering iron. 1. Completely remove the solder from each IC pin by use of solder sucker. 2. Raise each pin by means of an eyelet, hold the pliers then remove IC package from P.C.B.
2	Melt the solder on the pin (one electrode) with the soldering iron.		
3	While the solder is melting, shift the pin upward by the soldering iron to remove it from the foil.		
4	Remove each pin from the foil according to the above-mentioned procedure.		

* Special soldering iron

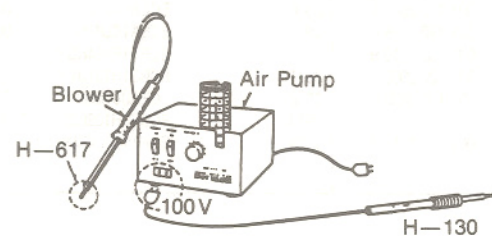
(Refer to Technical Information, ORDER NO. GAD84125486T1)...For U.S.A. and Canada

(Refer to Technical Information, ORDER NO. GAD84115476T8)...For others

• H-605 Spot Heater (hot-air solder iron)

This device that uses hot air to melt solder was developed to remove Flat-Package ICs, RHCs and chip parts.

- H-605M (For 120V power source)
- H-605E (For 200V/220V/240V power source)



• H-617 Twin Nozzle (for spot heater)

Special nozzle for the removal of RHCs and chip resistors. (Nozzle diameter: 1.0mm×2)

• H-130 Slim Pencil Solder Iron

An ultrasmall ceramic heater solder iron is extremely handy for soldering chip parts, RHCs, ICs etc., to high-density circuit boards.

Features:

- Rated power: 100V, 15W
- Max. temp.: 400°C
- Heater: ceramic (long life)
- Insulation resistance: 100MΩ
- Length: 178mm
- Weight: 16g (not including cord)

• H-131, H-V13 Cap Bits

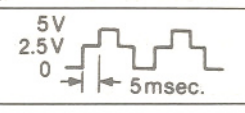
Solder tip for the slim pencil Solder Iron is composed of a bit holder and a corrosion resistance solder tip. Permits changing of solder tips even while still hot.

- Solder tip: 0.3mm



■ FUNCTION OF IC TERMINALS

• IC901 (UPD1718G514) PLL controller

PIN NO.	IN/OUT	MARK	DESCRIPTION OF TERMINAL
1~4	OUTPUT	LCD4~LCD1	Segment signal output for LCD display.
5	OUTPUT	COM2	Common of LCD. 
6		COM1	
7	INPUT	V _{DD}	Power supply terminal.
8	INPUT	FM	Input for FM OSC output frequency divided to 1/32 or 1/33 by pre-scaler.
9	INPUT	AM	Input for AM OSC output. 
10	—	GND	Ground terminal.
11	—	EO1	Not used in this unit.
12	OUTPUT	EO2	Error output of PLL. The frequency is output as a result of comparison between crystal frequency and FM or AM (MW/LW) station frequency.
13	INPUT	CE	Power supply detection. "H" input with it connected to home-use power outlet socket. H → 4V, L → 0V
14	—	NC	Not used in this unit.
15	OUTPUT	X1	Connecting terminal for crystal oscillator. The crystal connected is at 4.5MHz.
16	INPUT	X2	
17	INPUT	SD	Station detection. 1. Signal received → H (5V) 2. NO signal → L (0V)
18	INPUT	REMOTE	Remote control input terminal. Power supply connecting.
19	OUTPUT	FM	"H" output in FM mode.
20	OUTPUT	FM MONO	Forcible monaural selection. 
21~24	INPUT	K3~K0	Input terminal for key return signal from external key matrix.
25~28	OUTPUT	PB3~PB0	Output terminal for key source signal data.
29~31		PC3~PC1	
32	OUTPUT	MUTE	This is the output terminal to eliminate shock noise due to unlocking at PLL. < Muting output > 1. Pin 13 (CE) is L → H or H → L. 2. Power switch "off". 3. Frequency change. (up/down, FM ↔ AM) 4. FM IF selection. 
33	INPUT	V _{DD}	Power supply terminal.
34~52	OUTPUT	LCD23~LCD5	Segment signal output for LCD display.

Pin No.	25	26	27	28	29
21	up	AM	CH5 /13	CH1 /9	—
22	down	—	CH6 /14	CH2 /10	—
23	—	FM	CH7 /15	CH3 /11	memo
24	—	mode	CH8 /16	CH4 /12	—

RESISTORS & CAPACITORS

Notes: * Important safety notice:
Components identified by Δ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area.
Parts without these indications can be used for all areas.

Numbering System of Resistor

Example

ERD	25	F	J	102
Type	Wattage	Shape	Tolerance	Value
ERX	2	AN	J	471
Type	Wattage	Shape	Tolerance	Value
				47x10 ¹ (ohm)

Numbering System of Capacitor

Example

ECKD	1H	102	Z	F
Type	Voltage	Value	Tolerance	Peculiarity
ECEA	50		M	330
Type	Voltage		Peculiarity	Value
				(33x10 ⁰ microfarad)

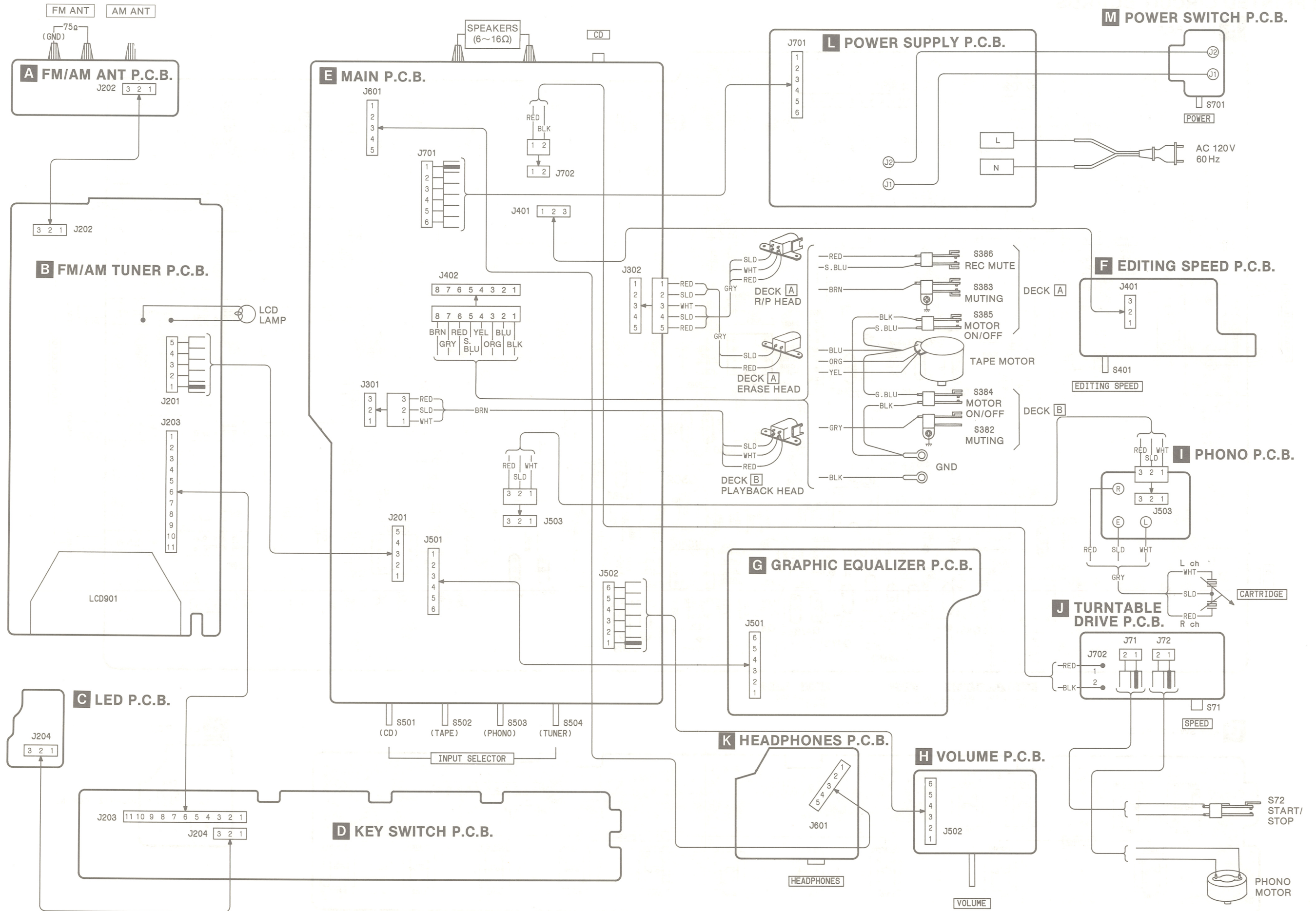
Resistor Type	Wattage	Tolerance
ERD : Carbon	10 : 1/8W	J : $\pm 5\%$
ERG : Metal Oxide	12 : 1/2W	F : $\pm 1\%$
ERX : Metal Film	25 : 1/4W	G : $\pm 2\%$
ERQ : Fuse Type Metal	1A : 1W	K : $\pm 10\%$
ERD $\square$ L : Carbon (chip)	18 : 1/8W	
ERD $\square$ K : Metal Film (chip)	S2 : 1/4W	
ERC : Solid	S1 : 1/2W	
	2F : 1/4W	
	50 : 1/2W	
	2A : 2W	

Capacitor Type	Voltage	Tolerance
ECE : Electrolytic	0J : 6.3V	C : $\pm 0.25\text{pF}$
ECCD : Ceramic	1A : 10V	J : $\pm 5\%$
ECKD : Ceramic	1C : 16V	K : $\pm 10\%$
ECQM : Polyester	1E : 25V	Z : $+80\%$
	1H : 50V	-20%
ECQP : Polypropylene	1V : 35V	P : $+100\%$
	50 : 50V	-0%
ECG : Ceramic	05 : 50V	M : $\pm 20\%$
ECEADDDN : Non Polar Electrolytic	2H : 500V	
QCU $\square$: Ceramic (Chip Type)	2A : 100V	D : $\pm 0.5\text{pF}$
ECUX : Ceramic (Chip Type)	1 : 100V	G : $\pm 2\%$
ECF : Semiconductor	KC : 400V AC	
	KC : 125VAC (UL)	
EECW : Liquid electrolyte double layer capcitor	1J : 63V	

Ref. No.	Part No.	Part Code	Ref. No.	Part No.	Part Code	Ref. No.	Part No.	Part Code
R903	ERDS2TJ681	001 152 2449 8	C229, C230	ECKD1H103PF	001 103 1449 7	C481	ECKD1H223PF	001 103 1510 9
R904	ERDS2TJ103	001 152 2347 3	C231, C232	ECKD1H103PF	001 103 1449 7	C501, C502	ECCD1H120KC	001 103 0370 7
R905	ERDS2TJ102	001 152 2346 4	C233	ECEA1HUR47	001 120 3249 8	C503, C504	ECFT1E104KDY	
R906	ERDS2TJ153	001 152 2351 7	C234	ECEA1CU100	001 120 2905 3	C505, C506	ECEA1HU010	001 120 2842 1
R907	ERDS2TJ104	001 152 2348 2	C235	ECEA0JU101	001 120 2829 8	C507, C508	ECCD1H470K	001 103 0627 1
R908, R909	ERDS2TJ103	001 152 2347 3	C236	ECCD1H080CC	001 103 0284 4	C509, C510	ECEA1CU220	001 120 2906 2
R910, R911	ERDS2TJ103	001 152 2347 3	C237	ECCD1H470K	001 103 0627 1	C511, C512	ECEA1HU010	001 120 2842 1
R912, R913	ERDS2TJ103	001 152 2347 3	C238	ECEA1HU3R3	001 120 3254 1	C513, C514	ECKD1H102KB	001 103 1414 8
R914, R915	ERDS2TJ103	001 152 2347 3	C239	ECEA1EU4R7	001 120 2840 3	C525, C526	ECFTD223JX	001 108 0333 7
R916	ERDS2TJ103	001 152 2347 3	C240	ECCD1H101K	001 103 0341 2	C550, C551	ECKD1H223PF	001 103 1510 9
R917	ERDS2TJ273	001 152 2436 3	C241, C242	ECKD1H223PF	001 103 1510 9	C561, C562	ECEA50ZR68	001 120 1290 5
R918, R919	ERDS2TJ103	001 152 2347 3	C243, C244	ECKD1H103PF	001 103 1449 7	C563, C564	ECFTD473JX	001 108 0336 4
R920	ERDS2TJ104	001 152 2348 2	C248	ECKD1H103PF	001 103 1449 7	C565, C566	ECFT1E683KDY	
R921	ERD25FJ2R2	001 152 0251 8	C251	ECEA1EU4R7	001 120 2840 3	C567, C568	ECFT1E472KDY	001 108 0620 3
R922	ERDS2TJ271	001 152 2435 4	C252	ECEA1HSR33	001 120 3249 8	C569, C570	ECFT1E682KDY	
R923	ERDS2TJ102	001 152 2346 4	C253	ECEA0JS102	001 120 0152 8	C571, C572	ECKD1H471KB	001 103 1551 0
R924	ERDS2TJ473	001 152 2363 3	C254	ECQP2A102JZ	001 106 2345 5	C573, C574	ECFT1E152KDY	001 108 0586 8
R925	ERDS2TJ104	001 152 2348 2	C255	ECEA1CU100	001 120 2905 3	C575	ECEA1CU101	001 120 2926 8
R927	ERDS2TJ333	001 152 2358 0	C256, C257	ECFTD223JX	001 108 0333 7	C577, C578	ECEA1HU010	001 120 2842 1
R928	ERDS2TJ102	001 152 2346 4	C258, C259	ECEA1EU4R7	001 120 2840 3	C579, C580	ECEA1HU010	001 120 2842 1
R929	ERDS2TJ104	001 152 2348 2	C261	ECKD1H103PF	001 103 1449 7	C601, C602	ECEA1HU010	001 120 2842 1
R930	ERDS2TJ681	001 152 2449 8	C262	ECKD1H223PF	001 103 1510 9	C603, C604	ECKD1H102KB	001 103 1414 8
R931	ERDS2TJ103	001 152 2347 3	C263	RCBS1H471KBY	001 103 5630 6	C605, C606	ECEA1AU101	001 120 2830 5
R932	ERDS2TJ471	001 152 2361 5	C265	ECKD1H223PF	001 103 1510 9	C607, C608 Δ	ECEA1CU470	001 120 2835 0
R933	ERDS2TJ103	001 152 2347 3	C303, C304 Δ	ECEA1CU470	001 120 2835 0	C609, C610 Δ	ECEA1AU471	001 120 3029 8
R935	ERDS2TJ333	001 152 2358 0	C305, C306	ECEA0JU101	001 120 2829 8	C611	ECEA1CU221	001 120 2833 2
R937	ERDS2TJ824	001 152 2457 8	C307, C308	ECFT1E382KDY		C613, C614	ECFT1E104KDY	
CAPACITORS			C311, C312	ECKD1H681K	001 103 1580 5	C651, C652 Δ	ECEA1CU470	001 120 2835 0
C71	ECEA1HU3R3	001 120 3254 1	C313, C314	ECEA1EU4R7	001 120 2840 3	C653	ECEA1CU100	001 120 2905 3
C72	ECEA1CU220	001 120 2906 2	C315, C316	ECEA1EU4R7	001 120 2840 3	C701 Δ	ECEA1ES332	001 120 3025 2
C73	ECEA1HU010	001 120 2842 1	C317, C318 Δ	ECEA1CU470	001 120 2835 0	C702	ECEA1CU101	001 120 2926 8
C74 Δ	ECEA1CU470	001 120 2835 0	C319, C320	ECEA0JU101	001 120 2829 8	C703, C704 Δ	ECKD1H103PF	001 103 1449 7
C201	ECCD1H470KC	001 103 0628 0	C321, C322	ECFT1E392KDY		C705, C706 Δ	ECKD1H103PF	001 103 1449 7
C202	ECCD1H330KC	001 103 0569 4	C325, C326	ECKD1H681K	001 103 1580 5	C708	ECKD1H103PF	001 103 1449 7
C203	ECCD1H150KC	001 103 0410 6	C327, C328	ECEA1EU4R7	001 120 2840 3	C709	ECEA1VU101	001 120 2929 5
C204, C205	ECKD1H102PF	001 103 1435 3	C335, C336	ECQM1H122JZ	001 106 0683 8	C710	ECEA1CU101	001 120 2926 8
C206	ECKD1H103PF	001 103 1449 7	C337, C338	ECQM1H472JZ	001 106 0801 0	C713	ECKDKC103PF2	001 103 3734 7
C207	ECCD1H030CC	001 103 0230 8	C339, C340	ECEA1HU010	001 120 2842 1	C714	ECKD1H102KB	001 103 1414 8
C208	ECKD1H102KB	001 103 1414 8	C343, C344	ECCD1H120KC	001 103 0370 7	C715	ECEA1CU221	001 120 2833 2
C209, C210	ECCD1H010CC	001 103 0215 7	C347, C348	ECEA1HU010	001 120 2842 1	C716	ECFTD223JX	001 108 0333 7
C211	RCBS1H100JLY	001 103 5564 9	C349, C350	ECFT1E822KDY		C750	ECEA1HU010	001 120 2842 1
C212	ECKD1H181KB	001 103 1473 7	C351, C352	ECEA1HUR47	001 120 3249 8	C751	ECEA1CU101	001 120 2926 8
C213, C214	ECKD1H103PF	001 103 1449 7	C355	ECQM1H472JZ	001 106 0801 0	C901	ECKD1H103PF	001 103 1449 7
C215	ECCD1H050CC	001 103 0251 3	C356	ECEA50M3R3	001 120 1117 7	C902	ECEA25M4R7R	001 120 0838 5
C216	ECKD1H102KB	001 103 1414 8	C357	ECQM1H562JZ	001 106 0820 7	C903	ECKD1H103PF	001 103 1449 7
C217	ECCD1H080CC	001 103 0284 4	C358	ECQM1H473JZ	001 106 0810 9	C904	RCBS1H470JLY	001 103 5628 0
C218	ECCD1H220KC	001 103 0494 6	C359, C359	ECQP2A471JZ		C905	RCBS1H100JLY	001 103 5564 9
C219	ECCD1H060CC	001 103 0264 8	C401	ECEA1CU330	001 120 2884 1	C906	ECEA1HUR47	001 120 3249 8
C220	ECCD1H050CC	001 103 0251 3	C402	ECEA1CU221	001 120 2833 2	C907	ECCD1H150KC	001 103 0410 6
C221	ECCD1H120KC	001 103 0370 7	C403	ECEA1HU010	001 120 2842 1	C908	ECEA0JS331	001 120 2975 9
C222	ECKD1H223PF	001 103 1510 9	C463, C464 Δ	ECEA1CU470	001 120 2835 0	C909	ECEA1CU100	001 120 2905 3
C224	ECCD1H470K	001 103 0627 1	C466	ECKD1H223PF	001 103 1510 9	C910	ECFT1E104KDY	
C226	ECFTD473JX	001 108 0336 4	C467	ECEA1CU100	001 120 2905 3	C911	ECBS1H101JLY	001 103 3502 1
C227	ECCD1H150KC	001 103 0410 6	C471 Δ	ECEA1CU470	001 120 2835 0	C912	ECEA0JU332	001 120 4671 4
C228	ECQP2A471JZ		C473, C474	ECFT1E822KDY		C913	RCBS1H102KBY	001 103 5571 0
			C479, C480	ECKD1H223PF	001 103 1510 9	C914	ECFT1E104KDY	

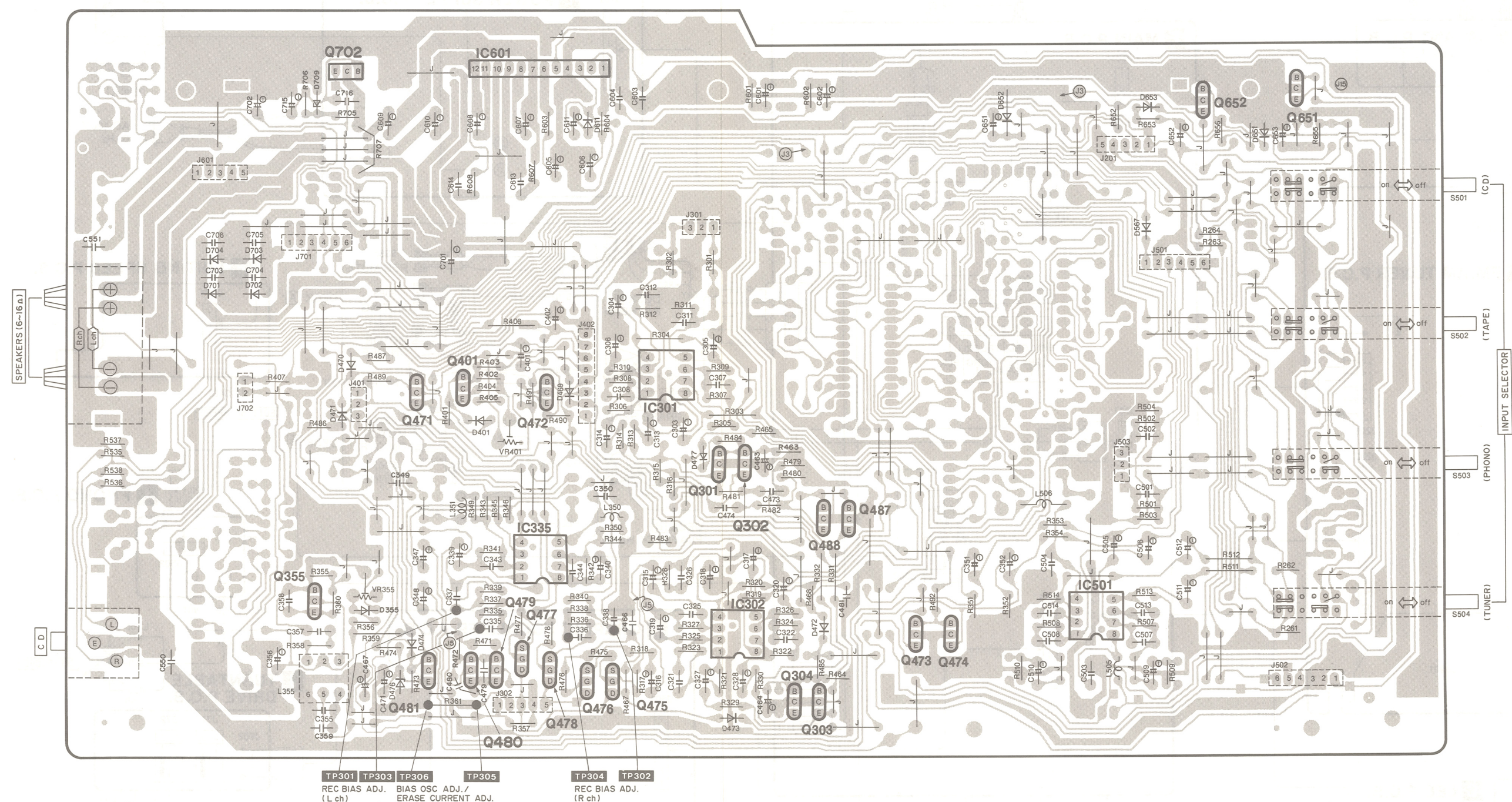
Ref. No.	Part No.	Part Code	Ref. No.	Part No.	Part Code	Ref. No.	Part No.	Part Code
RESISTORS			R305, R306	ERDS2TJ333	001 152 2358 0	R477, R478	ERDS2TJ155	001 152 2766 8
R71, R72	ERDS2TJ561	001 152 2364 2	R307, R308	ERDS2TJ824	001 152 2457 8	R479, R480	ERDS2TJ104	001 152 2348 2
R73	ERDS2TJ152	001 152 2350 8	R309, R310	ERDS2TJ221	001 152 2431 8	R481, R482	ERDS2TJ102	001 152 2346 4
R74	ERDS2TJ472	001 152 2362 4	R311, R312	ERDS2TJ224	001 152 2433 6	R483	ERDS2TJ103	001 152 2347 3
R201	ERDS2TJ332	001 152 2357 1	R313, R314	ERDS2TJ682	001 152 2365 1	R484, R485	ERDS2TJ222	001 152 2363 5
R202	ERDS2TJ824	001 152 2457 8	R315, R316	ERDS2TJ223	001 152 2432 7	R486, R487	ERDS2TJ103	001 152 2347 3
R203	ERDS2TJ332	001 152 2357 1	R317, R318	ERDS2TJ100	001 152 2420 1	R489, R490	ERDS2TJ103	001 152 2347 3
R204	ERDS2TJ221	001 152 2431 8	R319, R320	ERDS2TJ221	001 152 2431 8	R491	ERDS2TJ152	001 152 2360 8
R205	ERDS2TJ470	001 152 2442 5	R321, R322	ERDS2TJ333	001 152 2358 0	R492	ERDS2TJ222	001 152 2363 5
R206	ERDS2TJ333	001 152 2358 0	R323, R324	ERDS2TJ824	001 152 2457 8	R501, R502	ERDS2TJ824	001 152 2457 8
R207	ERDS2TJ274	001 152 2437 2	R325, R326	ERDS2TJ221	001 152 2431 8	R503, R504	ERDS2TJ473	001 152 2363 3
R208, R209	ERDS2TJ221	001 152 2431 8	R327, R328	ERDS2TJ224	001 152 2433 6	R507, R508	ERDS2TJ563	001 152 2446 1
R210	ERDS2TJ474	001 152 2443 4	R329, R330	ERDS2TJ682	001 152 2365 1	R509, R510	ERDS2TJ822	001 152 2455 0
R211	ERDS2TJ102	001 152 2346 4	R331, R332	ERD25TJ223	001 152 1863 2	R511, R512	ERD25FJ102	001 152 0215 2
R212	ERDS2TJ332	001 152 2357 1	R335, R336	ERDS2TJ183	001 152 2429 2	R513, R514	ERDS2TJ104	001 152 2348 2
R213	ERDS2TJ224	001 152 2433 6	R337, R338	ERDS2TJ100	001 152 2420 1	R525, R526	ERDS2TJ563	001 152 2446 1
R214	ERDS2TJ222	001 152 2353 5	R339, R340	ERDS2TJ561	001 152 2364 2	R527, R528	ERDS2TJ683	001 152 2450 5
R225	ERDS2TJ824	001 152 2457 8	R341, R342	ERDS2TJ153	001 152 2361 7	R535, R536	ERDS2TJ183	001 152 2429 2
R226	ERD25FJ122	001 152 0226 9	R343, R344	ERDS2TJ272	001 152 2354 4	R537, R538	ERDS2TJ152	001 152 2350 8
R227	ERDS2TJ104	001 152 2348 2	R345, R346	ERDS2TJ104	001 152 2348 2	R561, R562	ERDS2TJ562	001 152 2445 2
R228	ERDS2TJ102	001 152 2346 4	R349, R350	ERDS2TJ820	001 152 2453 2	R563, R564	ERDS2TJ682	001 152 2365 1
R229, R230	ERDS2TJ122	001 152 2423 8	R351, R352	ERDS2TJ272	001 152 2354 4	R565, R566	ERDS2TJ562	001 152 2445 2
R231	ERDS2TJ562	001 152 2445 2	R353, R354	ERDS2TJ472	001 152 2362 4	R567	ERD25FJ221	001 152 0260 7
R232	ERDS2TJ682	001 152 2365 1	R355	ERDS2TJ104	001 152 2348 2	R601, R602	ERDS2TJ102	001 152 2346 4
R233	ERDS2TJ681	001 152 2449 8	R356	ERDS2TJ472	001 152 2362 4	R603, R604	ERDS2TJ151	001 152 2426 5
R234	ERDS2TJ222	001 152 2353 5	R357	ERDS2TJ470	001 152 2442 5	R605, R606	ERDS2TJ271	001 152 2435 4
R235	ERDS2TJ391	001 152 2360 6	R358	ERDS2TJ100	001 152 2420 1	R607, R608	ERDS2TJ399	001 152 2871 8
R236	ERDS2TJ332	001 152 2357 1	R359	ERD25FJ470	001 152 0309 7	R652	ERDS2TJ562	001 152 2445 2
R237	ERDS2TJ104	001 152 2348 2	R360	ERDS2TJ47R	001 152 2826 3	R653	ERDS2TJ222	001 152 2353 5
R238, R244	ERDS2TJ103	001 152 2347 3	R361	ERD25FJ1R0	001 152 0208 1	R655	ERDS2TJ223	001 152 2432 7
R251	ERDS2TJ470	001 152 2442 5	R401	ERDS2TJ105	001 152 2422 9	R656	ERDS2TJ273	001 152 2436 3
R252	ERDS2TJ472	001 152 2362 4	R402	ERDS2TJ392	001 152 2439 0	R702	ERDS2TJ101	001 152 2421 0
R253	ERDS2TJ224	001 152 2433 6	R403	ERDS2TJ183	001 152 2429 2	R703	ERDS2TJ102	001 152 2346 4
R254	ERDS2TJ103	001 152 2347 3	R404	ERDS2TJ682	001 152 2365 1	R704	ERDS1TJ335	001 152 5952 6
R255	ERDS2TJ102	001 152 2346 4	R405	ERDS2TJ102	001 152 2346 4	R705	ERDS2TJ681	001 152 2449 8
R256, R257	ERDS2TJ332	001 152 2357 1	R406, R407	ERD25FJ47R	001 152 0303 3	R706	ERDS2TJ101	001 152 2421 0
R258	ERDS2TJ471	001 152 2361 5	R463, R464	ERDS2TJ223	001 152 2432 7	R707	ERDS1FJ2R2	001 152 2755 1
R261, R262	ERDS2TJ822	001 152 2455 0	R465, R467	ERDS2TJ472	001 152 2362 4	R750, R751	ERDS2TJ473	001 152 2363 3
R263, R263	ERDS2TJ103	001 152 2347 3	R468	ERDS2TJ472	001 152 2362 4	R752	ERDS2TJ153	001 152 2351 7
R264, R264	ERDS2TJ103	001 152 2347 3	R471, R472	ERDS2TJ332	001 152 2357 1	R753	ERDS2TJ473	001 152 2363 3
R301, R302	ERDS2TJ100	001 152 2420 1	R473	ERDS2TJ103	001 152 2347 3	R754	ERDS2TJ392	001 152 2439 0
R303, R304	ERD25FJ221	001 152 0260 7	R474	ERDS2TJ102	001 152 2346 4	R901	ERDS2TJ562	001 152 2445 2
			R475, R476	ERDS2TJ155	001 152 2766 8	R902	ERDS2TJ822	001 152 2455 0

■ WIRING CONNECTION DIAGRAM

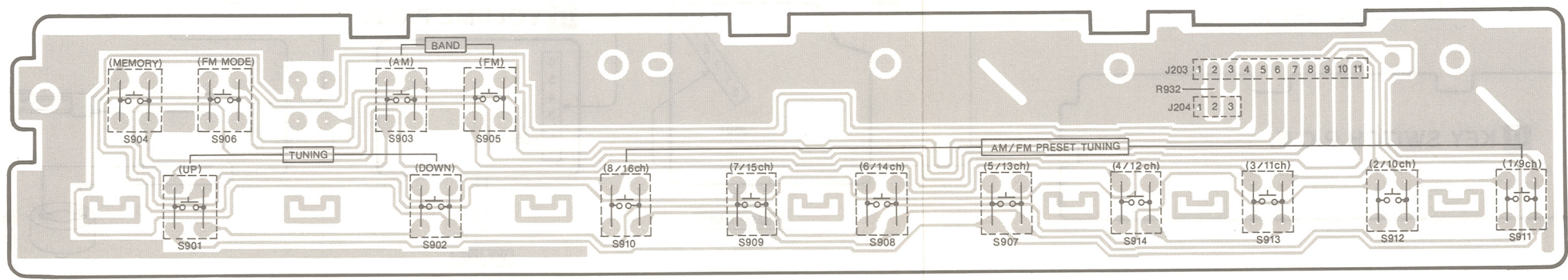


PRINTED CIRCUIT BOARDS

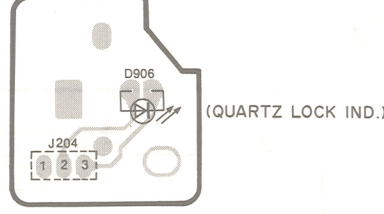
E MAIN P.C.B.



D KEY SWITCH P.C.B.



C LED P.C.B.

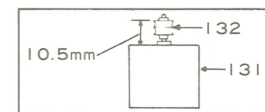


A
B
C
D



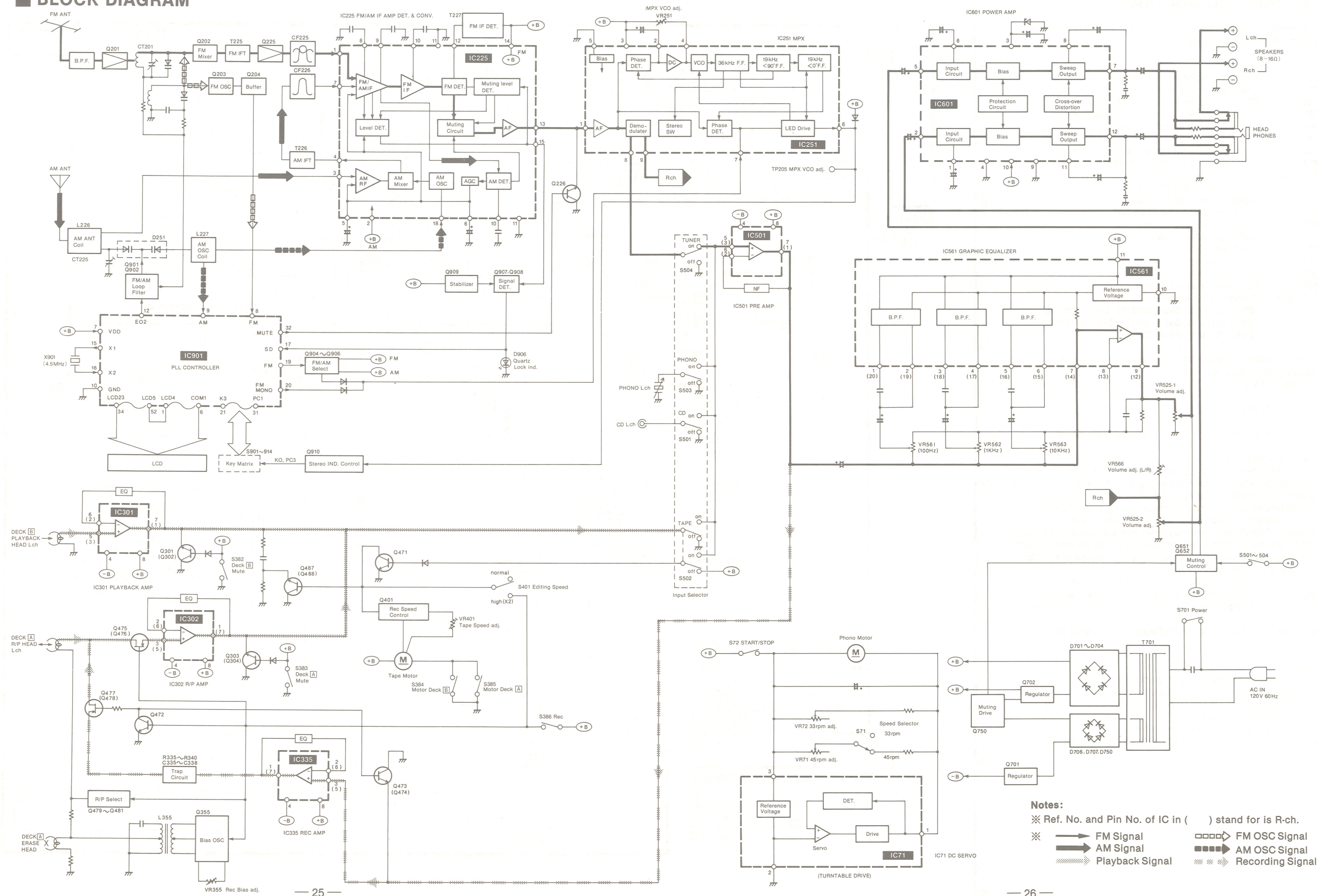
Ref. No.	PART NAME	PARTS NO.
①	FLOIL G-311S	SZZOL26
②	FLOIL G-488M	SZZOL28
③	SILICONE OIL G-40M	SZZOL27

Pressure of pressure roller	350 ± 50 g	Wow and flutter; (JIS) * Use test tape QZZCWAT	Less than 0.2% (WRMS)
Takeup tension * Use cassette torque meter QZZSRKCT	35 ~ 60 g-cm		



Ref. No.	Part No.	Part Code	Description	Ref. No.	Part No.	Part Code	Description	Ref. No.	Part No.	Part Code	Description	Ref. No.	Part No.	Part Code	Description
CASSETTE DECK				123	SMQT1564	016 630 1678 9	REEL BASE ASS'Y	144	RFS532Z	015 728 1316 9	SPRING	SCREWS, WASHERS & NUTS			
				124	SMQT1620	016 745 0182 4	FF GEAR	145	SMQT1654	016 717 0251 6	ARM	N51	XTN2+4H	005 501 2158 1	SCREW
104	SJH94	001 270 0774 7	E HEAD (DECK A)	125	RFY549Z	015 718 3506 3	LEVER	146	SMQT1555	016 718 3270 6	REW LEVER	N52	XYN2D8	005 503 0922 7	SCREW
105	SJH92	001 270 1308 5	R/P HEAD	126	RFS453Z	015 726 2442 0	SPRING	147	RFS466Z	015 726 2449 3	SPRING	N53	XYN2DB7	005 503 0920 9	SCREW
106	SMQT1469	016 726 0432 2	SPRING	127	SMQT1569	016 718 3278 8	LEVER	148	SMQT1548	016 630 1676 1	PUSH BUTTON ACTUATOR	N54	XYN2D7	005 501 0921 8	SCREW
107	RFS447Z	015 726 2437 7	SPRING	128	RFS454Z	015 726 2443 9	COIL SPRING	150	RFY541Z	016 630 1761 5	ANGLE	N55	RFN142Z	005 513 3262 2	WASHER
108	SMQT1468	016 630 0239 2	HEAD BASE (DECK A)	129	SMQT1659	016 718 3347 2	LEVER	151	SMQT1463	016 643 0597 2	STOPPER	N56	XTN2+C5	005 501 3458 8	SCREW
108	SMQT1670	016 630 1835 4	HEAD BASE (DECK B)	130	RFY585Z	015 718 4091 1	LEVER	152	RFS459Z	015 726 2444 8	SPRING	N57	XTN2+5H	005 501 2162 5	SCREW
109	SMQT1653	016 630 1747 3	SENSING PLATE	131	MMI6H2LWSC	002 310 2558 6	DC MOTOR	153	SMQT1556	016 718 3269 9	LEVER	N58	XTN2+3H	005 501 4724 5	SCREW
110	SMQT1560	016 630 1674 3	HEAD PANEL (DECK A)	132	SMQT1619	016 741 0073 8	PULLEY	154	SMQT1554	016 718 3271 5	PAUSE BUTTON LEVER	N59	RFN149Z	005 513 3269 5	SCREW
110	SMQT1669	016 630 1836 3	HEAD PANEL (DECK B)	133	SMQT1652	016 754 0058 6	ANGULAR BELT	155	SMQT1553	016 718 3272 4	STOP BUTTON LEVER	N59	SMQT1537	005 500 5082 7	SCREW
111	SMQT1622	016 726 0767 2	SPRING	134	RFI27Z	015 653 0531 2	MOTOR RUBBER	156	SMQT1552	016 718 3273 3	FF BUTTON LEVER	N60	XTB2+5G	005 501 2615 7	SCREW
112	SMQT1643	016 913 0002 7	SUPPLY REEL ASS'Y	135	SMQT1651	016 650 5255 0	ANGLE	157	SMQT1551	016 718 3274 2	REW BUTTON LEVER	N61	RFE239Z	005 500 5057 8	SCREW
113	SMQT1639	016 726 0776 1	SPRING	136	SMQT1579	016 655 0614 2	FELT	158	SMQT1550	016 718 3275 1	PLAY BUTTON LEVER	N62	SMQ4918	016 643 0446 6	SCREW
114	RFR29Z	015 740 0302 7	ROLLER	137	RFY582Z	015 718 4089 5	LEVER	159	SMQT1580	016 718 3279 7	LEVER, REC (DECK A)	N63	SMQT1617	016 643 0918 5	COLOR
115	RFS531Z	015 726 2470 6	SPRING	138	RFF39Z	015 756 0406 4	WHEEL (DECK B)	160	SMQT1618	016 630 1708 0	ANGLE	N64	RFN153Z	005 513 3274 8	WASHER
116	SMQT1637	016 765 0054 9	TAKE UP REEL ASS'Y	138	RFF40Z	015 756 0407 3	WHEEL (DECK A)	161	RFS462Z	015 728 1267 1	SPRING	N64	SMQT1624	005 500 5729 1	SCREW
117	SMQT1621	016 726 0766 3	SPRING	139	SMQT1563	016 752 0118 1	RF BELT	162	SMQT1558	016 726 0272 0	SPRING	N65	RFN123Z	005 513 3688 3	WASHER
118	SMQT1605	016 718 3302 5	REC LEVER (DECK A)	140	SMQT1601	016 641 0239 1	METAL GUIDE	166	SMQT1547	016 630 1679 8	MAIN BASE ASS'Y	N67	XTN2+6G	005 501 1622 2	SCREW
119	RF661Z	015 745 0849 2	GEAR	141	SMQT1557	016 630 1675 2	SUB CHASSIS	167	SMQT1568	016 650 5145 5	ANGLE	N68	XTN2+6H	005 501 3459 7	SCREW
120	SMQT1658	016 630 1745 5	PLATE	142	RFS530Z	015 726 2469 9	COIL SPRING	168	SMQT1628	016 643 0940 7	P.R STOPPER	N69	XYN2+C5	005 500 1291 6	SCREW
121	RFS450Z	015 726 2440 2	SPRING	143	SMQT1465	016 726 0434 0	SPRING (DECK A)	169	SMQT1641						

BLOCK DIAGRAM



- Notes:**
- ※ Ref. No. and Pin No. of IC in () stand for is R-ch.
 - ※ FM Signal
 - ※ AM Signal
 - ※ Playback Signal
 - FM OSC Signal
 - AM OSC Signal
 - Recording Signal

■ SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time with the development of new technology.)

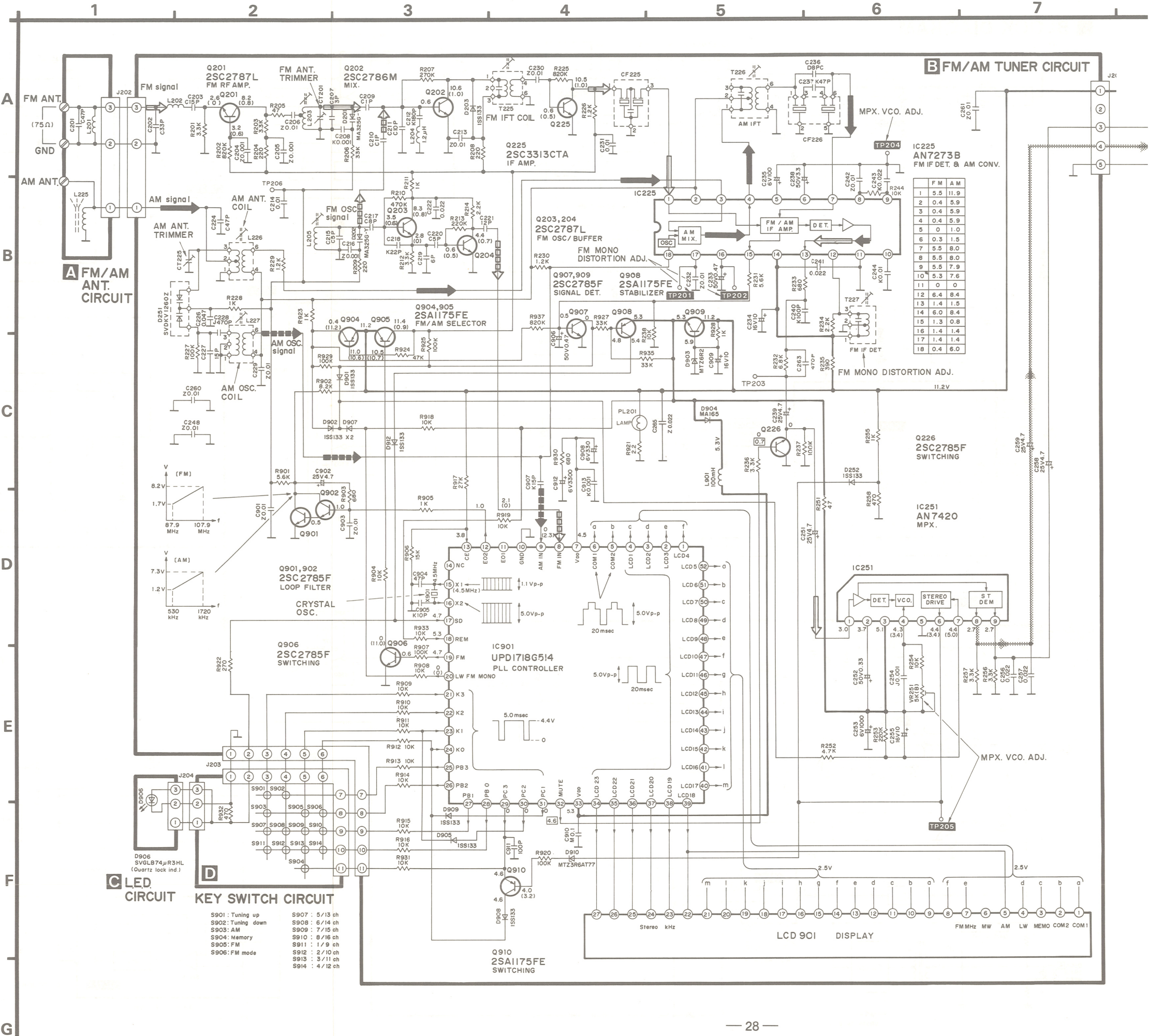
- Notes:**
- **S71** : Player speed selector switch in "33-1/3 rpm" position.
 - **S72** : Player start/stop switch in "stop" position.
 - **S382** : DECK B muting switch in "off" position.
 - **S383** : DECK A muting switch in "off" position.
 - **S384** : DECK B motor switch in "off" position.
 - **S385** : DECK A motor switch in "off" position.
 - **S386** : Auto rec mute switch in "off" position.
 - **S401** : Editing switch in "off" position.
 - **S501~504** : Input selector switch in "Tuner" position.

- **S501**: CD, **S502**: tape
- **S503**: phono, **S504**: tuner
- **S701** : Power switch in "on" position.
- **S901, 902** : Tuning (up/down) switch.
- **S903** : Band (AM) switch.
- **S904** : Memory switch.
- **S905** : Band (FM) switch.
- **S906** : FM mode selector switch.
- **S907~914** : Preset tuning switch.
- **S907**: CH5/13, **S908**: CH6/14, **S909**: CH7/15,
- **S910**: CH8/16, **S911**: CH1/9, **S912**: CH2/10,
- **S913**: CH3/11, **S914**: CH4/12

- Positive voltage lines
- Negative voltage lines
- AM OSC signal
- FM signal
- AF signal
- AM signal
- FM OSC signal
- PB signal
- Rec signal

- **Important safety notice:**
Components identified by Δ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts. Indicated voltage values are standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on internal impedance of the DC circuit tester.
- All voltage values shown in circuitry are DC voltage in FM signal (Monaural signal) reception mode.
- Figure in () Stand for DC-voltage in MW signal reception mode
- Figure in [] Stand for DC-voltage in LW signal reception mode
- Figure in (()) Stand for DC-voltage in playback signal reception mode
- Figures in « » Stand for DC-voltage in REC signal reception mode

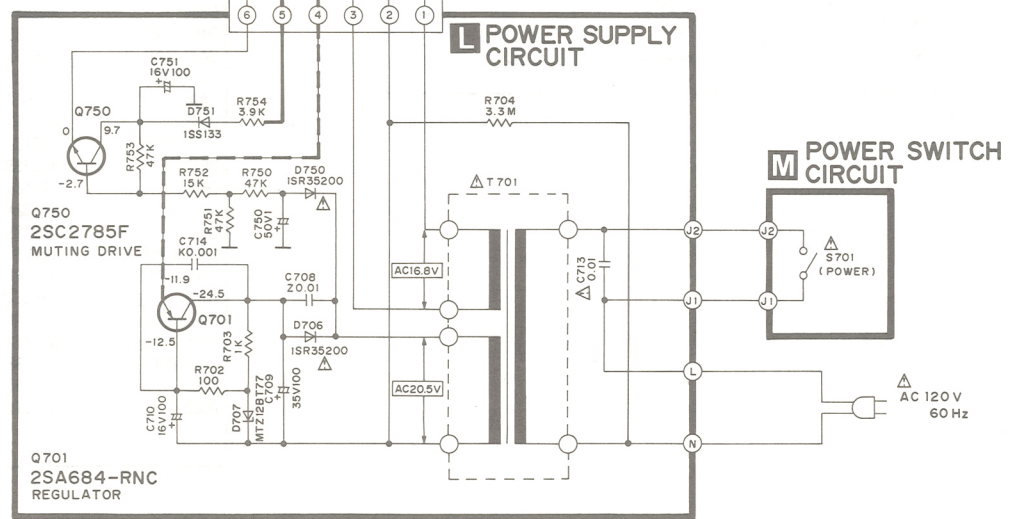
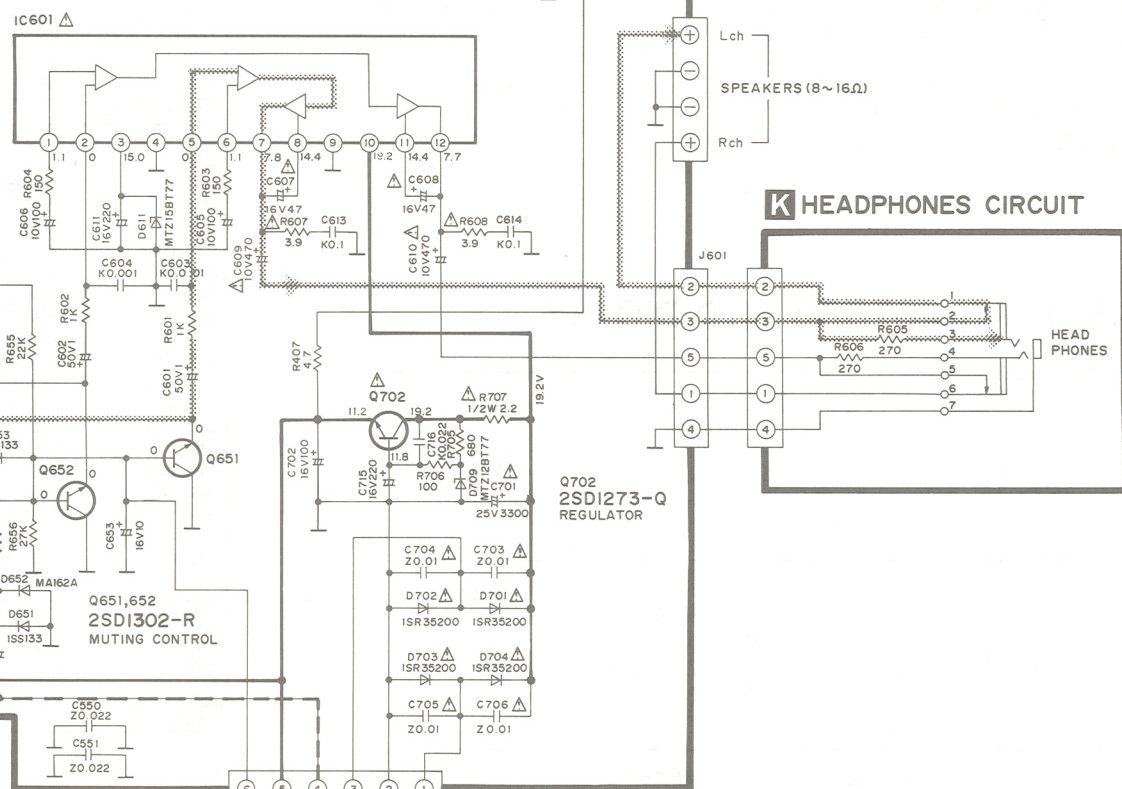
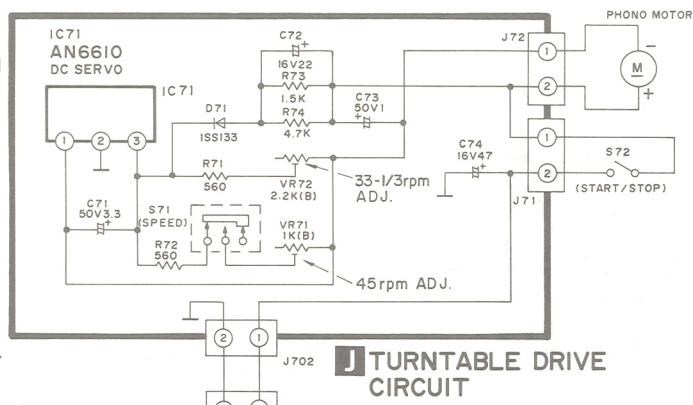
- * **Caution!**
IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.
- * Cover the parts boxes made of plastics with alminum foil.
- * Ground the soldering iron.
- * Put a conductive mat on the work table.
- * Do not touch the legs of IC or LSI with the fingers directly.



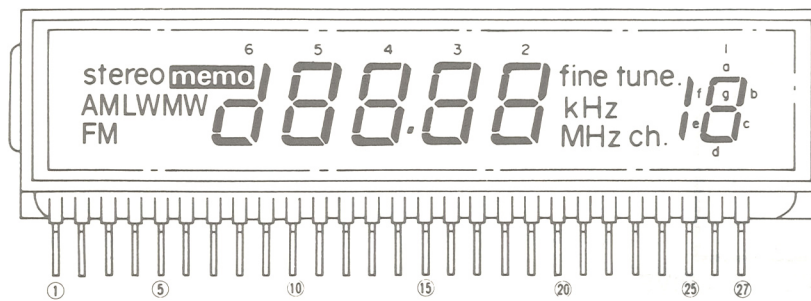


Voltage of IC71

	①	②	③
33rpm	6.5	0	7.7
45rpm	4.9	0	6.1



DESCRIPTION OF LCD PANEL

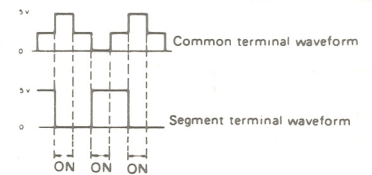


Common terminal - ①, ② Segment terminal - ③ ~ ②⑦

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
COM 1	COM 1	—	MEMO	—	AM	—	FM/MHz	6b	5f	5e	5d	5a	4f	4e
COM 2	—	COM 2	—	LW	—	MW	6d,e,g	6c	5b	5g	5c	—	4b	4g

No.	15	16	17	18	19	20	21	22	23	24	25	26	27
COM 1	4d	4a	3f	3e	3d	3a	2a,c,d,f	kHz	stereo	ch	1d	1e	1f
COM 2	4c	—	3b	3g	3c	2b,e	2g	fine tune	/	1a	1c	1g	1b

Lighting timing:
It turns on when the difference in voltage between common and segment terminals is 5V (VDD).



TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

NO. 1	<table><tr><td>AN6553F</td><td>8 Pin</td></tr><tr><td>AN6558F</td><td>8 Pin</td></tr><tr><td>AN7273B</td><td>18 Pin</td></tr><tr><td>M5243P12</td><td>20 Pin</td></tr></table>	AN6553F	8 Pin	AN6558F	8 Pin	AN7273B	18 Pin	M5243P12	20 Pin	<table><tr><td>AN7420</td><td>9 Pin</td></tr></table> NO. 1	AN7420	9 Pin	<table><tr><td>UPD1718G514</td><td>52 Pin</td></tr></table> NO. 1	UPD1718G514	52 Pin	<table><tr><td>AN6610</td></tr></table> 1. Vin 2. GND 3. Vout	AN6610
AN6553F	8 Pin																
AN6558F	8 Pin																
AN7273B	18 Pin																
M5243P12	20 Pin																
AN7420	9 Pin																
UPD1718G514	52 Pin																
AN6610																	
<table><tr><td>AN7147N</td><td>12 Pin</td></tr></table> NO. 1	AN7147N	12 Pin	<table><tr><td>2SA684, 2SD1302</td></tr></table> E C B	2SA684, 2SD1302	<table><tr><td>2SJ105</td></tr></table> Drain Gate Source	2SJ105	<table><tr><td>2SA1175, 2SC2784, 2SC2785, 2SC2786, 2SC2787L, 2SC3312, 2SC3313</td></tr></table> E C B	2SA1175, 2SC2784, 2SC2785, 2SC2786, 2SC2787L, 2SC3312, 2SC3313	<table><tr><td>2SD1273</td></tr></table> B C E	2SD1273							
AN7147N	12 Pin																
2SA684, 2SD1302																	
2SJ105																	
2SA1175, 2SC2784, 2SC2785, 2SC2786, 2SC2787L, 2SC3312, 2SC3313																	
2SD1273																	
<table><tr><td>SVGLB74UR3HL</td></tr></table> Anode Cathode Ca A	SVGLB74UR3HL	<table><tr><td>MA165, MA29WA, 1SR35200, 1SS133, MA162A</td></tr></table> Anode Cathode Ca A	MA165, MA29WA, 1SR35200, 1SS133, MA162A	Anode Cathode Ca A	<table><tr><td>MTZ8R2BT77, MTZ15BT77, MTZ12BT77, MTZ6R2BT77, MTZ3R6AT77</td></tr></table>	MTZ8R2BT77, MTZ15BT77, MTZ12BT77, MTZ6R2BT77, MTZ3R6AT77	<table><tr><td>MA325G</td></tr></table> Anode Cathode Ca A	MA325G	<table><tr><td>KV1260Z</td></tr></table> Anode Cathode Ca A	KV1260Z							
SVGLB74UR3HL																	
MA165, MA29WA, 1SR35200, 1SS133, MA162A																	
MTZ8R2BT77, MTZ15BT77, MTZ12BT77, MTZ6R2BT77, MTZ3R6AT77																	
MA325G																	
KV1260Z																	

REPLACEMENT PARTS LIST

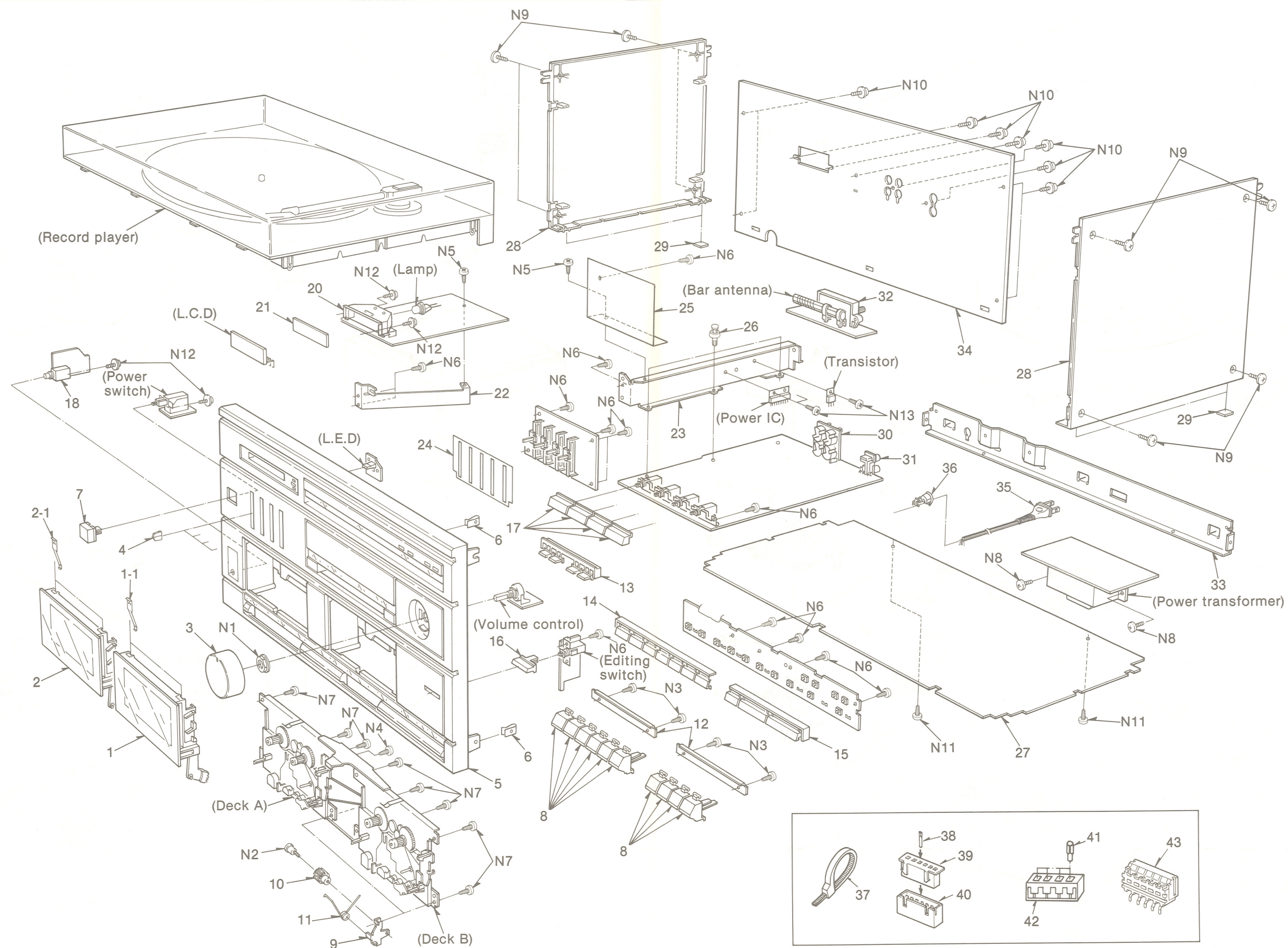
Notes: * Important safety notice:
Components identified by Δ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area.
Parts without these indications can be used for all areas.

* M mark stands for that the parts are supplied in MESA.

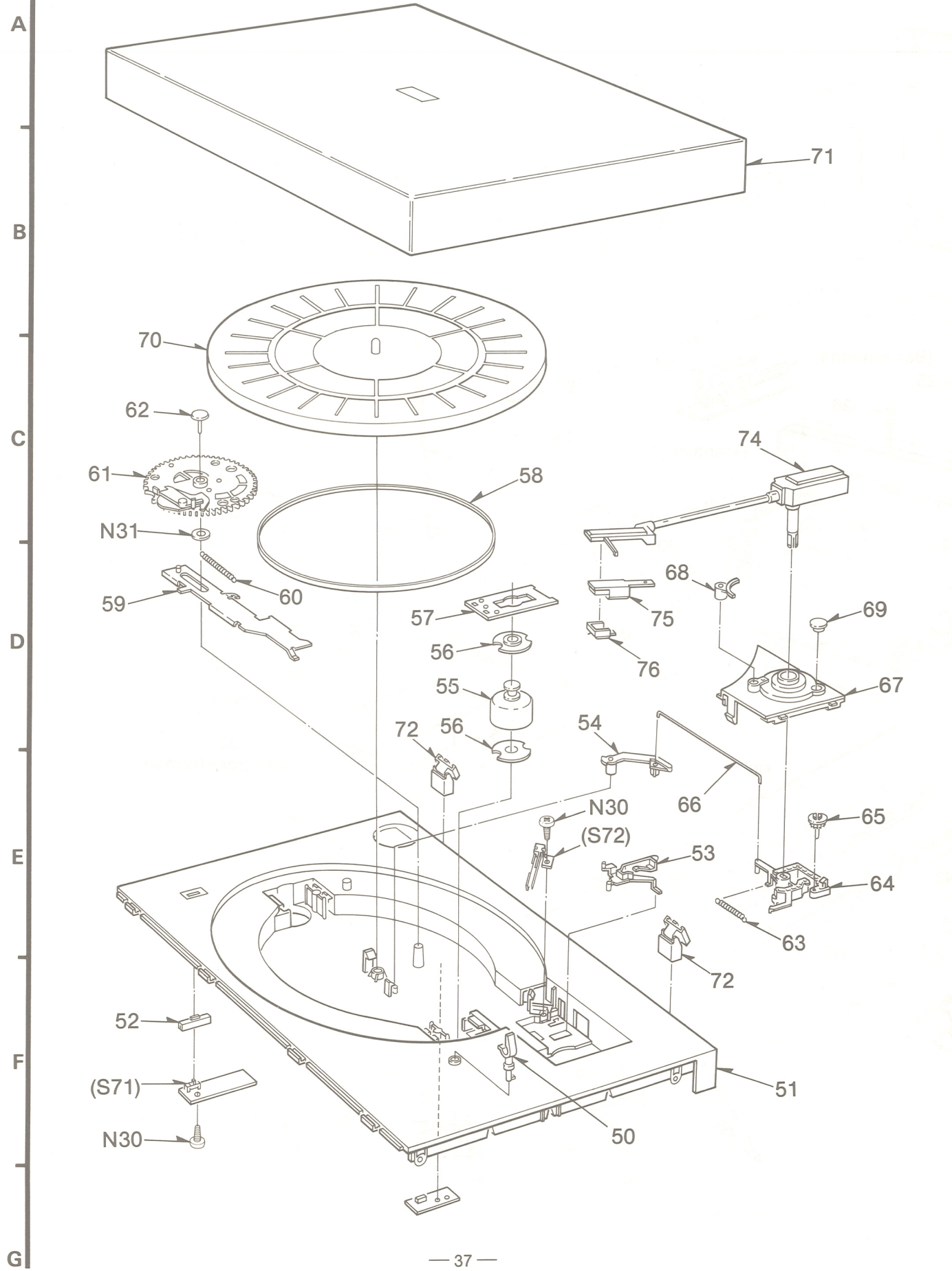
Ref. No.	Part No.	Part Code	Description	Ref. No.	Part No.	Part Code	Description
INTEGRATED CIRCUITS				D904	MA165	001 032 0494 0	DIODE
IC71	AN6610	001 060 0277 9	I.C.	D906	SVGLB74UR3HL	001 032 7553 8	L.E.D
IC225	AN7273B	001 060 4158 9	I.C.	D907, D908	1SS133	001 032 3324 5	DIODE
IC251	AN7420	001 060 4196 3	I.C.	D909	1SS133	001 032 3324 5	DIODE
IC301, IC302	AN6558F	001 060 4009 1	I.C.	D910	MTZ3R6AT77	001 033 0167 7	DIODE M
IC335, IC501	AN6553F	001 060 4207 7	I.C.	D912	1SS133	001 032 3324 5	DIODE
IC561	M5243P12	001 061 4586 9	I.C.	VARIABLE RESISTORS			
IC601 Δ	AN7147N	001 061 0919 3	I.C.	VR71	QVNB3A00B102	001 180 1676 5	VARIABLE RESISTOR
IC901	UPD1718G514	001 061 1045 4	I.C.	VR72	QVNB3A00B222	001 180 1654 1	VARIABLE RESISTOR
TRANSISTORS				VR251	SVNAA53B2-Q	001 180 1627 4	VARIABLE RESISTOR
Q201	2SC2787L	001 030 2508 3	TRANSISTOR	VR355	QVNB3A00B223	001 180 1618 5	VARIABLE RESISTOR
Q202	2SC2786M	001 030 5078 2	TRANSISTOR	VR401	QVNB3A00B103	001 180 1684 5	VARIABLE RESISTOR
Q203, Q204	2SC2787L	001 030 2508 3	TRANSISTOR	VR525	EWCTAF20A15	001 174 5407 4	VOLUME
Q225	2SC3313CTA	001 030 6020 6	TRANSISTOR	VR561, VR562	EWATA3X0AG15	001 174 8660 1	GRAPHIC EQUALIZER
Q226	2SC2785F	001 030 5076 4	TRANSISTOR	VR563	EWATA3X0AG15	001 174 8660 1	GRAPHIC EQUALIZER
Q301, Q302	2SD1302-R	001 030 2520 7	TRANSISTOR	VR566	EWATJ3X0AG15	001 174 8982 6	BALANCE
Q303, Q304	2SD1302-R	001 030 2520 7	TRANSISTOR	VARIABLE CAPACITORS			
Q355	2SD1302-R	001 030 2520 7	TRANSISTOR	CT201	SVCVCT54A	001 142 0658 5	TRIMMER M
Q401	2SA1175FE	001 030 5075 5	TRANSISTOR	CT225	SVCVCT54C	001 142 0659 4	TRIMMER M
Q471, Q472	2SC2785F	001 030 5076 4	TRANSISTOR	COILS AND TRANSFORMERS			
Q473, Q474	2SD1302-R	001 030 2520 7	TRANSISTOR	L204	ELEPK1R2MA	001 211 0621 4	CHOKE COIL
Q475, Q476	2SJ105GR	001 030 2827 1	TRANSISTOR	L225	SLF6C1-10	001 214 1576 3	ANTENNA COIL
Q477, Q478	2SJ105GR	001 030 2827 1	TRANSISTOR	L226	SLA2B1-M	001 211 1077 2	ANTENNA COIL
Q479, Q480	2SC2784PFE	001 030 6019 9	TRANSISTOR	L227	SL02B7-M	001 211 0859 4	OSCILLATOR COIL
Q481	2SA1175FE	001 030 5075 5	TRANSISTOR	L350, L351	SLQX272-1YT	001 211 0649 2	CHOCK COIL
Q487, Q488	2SC2785F	001 030 5076 4	TRANSISTOR	L355	SL09Z15-M	001 211 4091 2	OSC COIL M
Q651, Q652	2SD1302-R	001 030 2520 7	TRANSISTOR	L505	ELEPK101KA	001 211 0856 8	CHOCK COIL
Q701	2SA684-RNC	001 030 0352 3	TRANSISTOR	L506	ELEPH101KA	001 211 2987 9	CHOKE COIL
Q702 Δ	2SD1273-Q	001 030 2653 5	TRANSISTOR	L901	ELEXT101KA	001 211 3878 9	COIL
Q750, Q901	2SC2785F	001 030 5076 4	TRANSISTOR	T225	SL14B108-M	001 211 2792 8	I.F. TRANSFORMER
Q902	2SC2785F	001 030 5076 4	TRANSISTOR	T226	SL12B101-M	001 211 0654 5	I.F. TRANSFORMER
Q904, Q905	2SA1175FE	001 030 5075 5	TRANSISTOR	T227	SL14B519-Z	001 215 2839 0	I.F. TRANSFORMER
Q906, Q907	2SC2785F	001 030 5076 4	TRANSISTOR	T701 Δ	SLT5L275-K	001 202 8991 0	POWER TRANSFORMER M
Q908	2SA1175FE	001 030 5075 5	TRANSISTOR	FILTERS			
Q909	2SC2785F	001 030 5076 4	TRANSISTOR	CF225	SVFE107MS2-A	001 241 0777 7	CERAMIC FILTER
Q910	2SA1175FE	001 030 5075 5	TRANSISTOR	CF226	SVFSFZ450FTL	001 241 0429 4	CERAMIC FILTER
DIODES				OSCILLATORS			
D71	1SS133	001 032 3324 5	DIODE	X901	SVQ43U452-D	001 250 1506 3	CRYSTAL OSC
D201, D202	MA325G-Y	001 032 7205 5	ZENER	DISPLAYS			
D203	1SS133	001 032 3324 5	DIODE	LCD90	SALHLC9225-9	001 080 0308 7	DISPLAY
D251	KV1260Z	001 032 7237 7	DIODE	LAMPS			
D252	1SS133	001 032 3324 5	DIODE	PL201	XAMR78S250	002 351 0397 4	LAMP
D355	MA29WA	001 032 7250 0	DIODE	SWITCHES			
D401, D469	1SS133	001 032 3324 5	DIODE	S71	SSS167	003 431 3107 3	SWITCH SLIDE
D470, D471	1SS133	001 032 3324 5	DIODE	S72	SSP66	003 434 0543 4	SWITCH
D472, D473	1SS133	001 032 3324 5	DIODE	S382, S383	SMQT1466	003 434 0907 6	LEAF SWITCH
D474 Δ	SVD1SR35200A	001 032 3951 4	RECTIFIER	S384, S385	SMQT1451	003 434 0905 8	LEAF SWITCH
D476	MTZ8R2B	001 032 4210 0	DIODE	S386	SMQT1615	003 434 0993 2	LEAF SWITCH
D477, D567	1SS133	001 032 3324 5	DIODE	S401	SSH1194	003 435 6157 1	PUSH SWITCH
D611	MTZ15BT77	001 033 0166 8	DIODE M	S501, S502	SSH4109	003 435 6248 9	SWITCH
D651	1SS133	001 032 3324 5	DIODE	S503, S504	SSH4109	003 435 6248 9	SWITCH
D652	MA162A	001 032 0493 1	DIODE	S701 Δ	SSH1071	003 435 3185 9	SWITCH
D653	1SS133	001 032 3324 5	DIODE	S901, S902	SSG13	003 435 2951 9	SW
D701, D702 Δ	SVD1SR35200A	001 032 3951 4	RECTIFIER	S903, S904	SSG13	003 435 2951 9	SW
D703, D704 Δ	SVD1SR35200A	001 032 3951 4	RECTIFIER	S905, S906	SSG13	003 435 2951 9	SW
D706 Δ	SVD1SR35200A	001 032 3951 4	RECTIFIER	S907, S908	SSG13	003 435 2951 9	SW
D707, D709	MTZ12BT77	001 033 0165 9	DIODE M	S909, S910	SSG13	003 435 2951 9	SW
D750 Δ	SVD1SR35200A	001 032 3951 4	RECTIFIER	S911, S912	SSG13	003 435 2951 9	SW
D751, D901	1SS133	001 032 3324 5	DIODE	S913, S914	SSG13	003 435 2951 9	SW
D902	1SS133	001 032 3324 5	DIODE				
D903	MTZ6R2BT77	001 032 8085 1	DIODE				

Ref. No.	Part No.	Part Code	Description	Ref. No.	Part No.	Part Code	Description
CABINET AND CHASSIS				RECORD PLAYER			
1	SGXGD16-KM	016 846 3793 9	CASSETTE HOLDER M	50	SJY5218	016 700 1539 0	PU REST
1-1	QBP2006A	015 727 0706 8	SPRING	51	SJYGW7CD-KN	016 802 2148 0	CABINET PLATE
2	SGXGD16-KM1	016 846 3794 8	CASSETTE HOLDER M	52	SBN1132	016 700 0452 0	KNOB
2-1	QBP2006A	015 727 0706 8	SPRING	53	SJY5223	016 650 5081 4	BRACKET
3	SBN1203	016 700 1964 7	KNOB	54	SJY5222	016 718 3373 0	LEVER
4	SBD118	016 700 1589 0	KNOB	55	MMNGD16-KM	002 310 2543 3	DC MOTOR M
5	SGYGD16-KM	016 840 7617 8	FRONT PANEL M	56	SHG9260	016 653 0567 2	RUBBER CUSHION
6	SNE4060	005 513 3686 2	SPEED WASHER	57	SJY90456	016 632 1861 2	ANGLE
7	SBC666-1	016 702 6076 0	BUTTON	58	SJY90080-1	016 754 0008 6	BELT
8	SBC918	016 702 6923 6	BUTTON	59	SJYGX7-KM1	016 630 1800 5	PLATE
9	SMQ30030	016 650 5149 1	ANGLE	60	SJY90406	016 726 0069 1	SPRING
10	SMQ4096	016 745 0063 0	GEAR	61	SJYGD16-KM	016 745 0241 0	MAIN GEAR ASS'Y M
11	SMQ60019	016 726 0729 8	SPRING	62	SHR417	016 652 0751 9	PLASTIC SPACER
12	SUW2995	016 650 5182 0	BRACKET	63	SUS786	016 726 0923 8	SPRING
13	SBCGW7CD-KN	016 702 6927 2	BUTTON	64	SJY5220	016 716 0043 7	CAM
14	SBC916	016 702 6925 4	BUTTON	65	SJY5221	016 716 0044 6	CAM
15	SBC917	016 702 6924 5	BUTTON	66	SJY90455	016 718 3371 2	LEVER
16	SBC919	016 702 6922 7	BUTTON	67	SKM7540-2	016 800 3019 4	PLATE
17	SBC920	016 702 6921 8	BUTTON	68	SJY5224-3	016 718 3372 1	LEVER
18	SJJ138	003 400 7718 9	JACK	69	SHG9246-1	016 653 0560 9	RUBBER, CAP
20	SMP409	016 632 1787 5	LAMP CASE	70	SJYGW7CD-KN2	016 766 0221 7	TURN TABLE
21	SDU296	016 842 1321 5	GLASS, TRANSPARENT PLATE	71	SYE1112	016 820 0566 2	DOOR, LID
22	SUW3048	016 650 5337 9	BRACKET	72	SFATZ15R01	017 824 0020 3	HINGE
23	SUW3046	016 650 5338 8	BRACKET	74	EPA645STA	001 271 0701 9	PICKUP ARM
24	SMC6437	016 601 0626 8	SHIELD PLATE M	75	EPC13STH	001 272 0035 5	CARTRIDGE
25	SMC6439	016 601 0625 9	SHIELD PLATE M	76	EPS41ST	001 272 0093 5	STYLUS
26	SHR0094	016 640 0048 1	LATCH	SCREWS, WASHERS & NUTS			
27	SKUGD16-KM	016 802 2183 7	BOTTOM BOARD M	N30	XTB3*10G	005 501 2647 9	SCREW
28	SKM7621U	016 800 3018 5	CABINET ASS'Y	N31	XWE8D14	005 513 3527 6	WASHER
29	SHS3276	016 655 0659 9	FOOT M	PACKINGS			
30	SJF4442	003 410 5983 6	TERMINAL BOARD	P1	SPG5834	016 971 5008 5	CARTON BOX M
31	SJF3250	003 410 8059 1	TERMINAL BOARD	P2	SPS4894	016 977 3302 0	PAD M
32	SJF4231	003 410 8160 5	TERMINAL BOARD	P3	SPS4895	016 977 3301 1	PAD M
33	SUW3045	016 650 5378 0	BRACKET M	P4	SPS4896	016 977 3300 2	PAD M
34	SGPGD16-KM	016 840 7618 7	REAR PANEL M	P5	SPS4897	016 977 3299 8	PAD M
35	Δ SJA174K	003 490 5403 9	POWER CORD M	P6	SPS4953	016 977 3298 9	PAD M
36	SHR129	016 645 0038 8	BUSHING, AC CORD	P7	SPP748	016 978 0497 1	PROTECTION COVER
37	SHR301	016 645 0044 0	CLAMPER	P8	SPPB1	016 978 0487 3	PROTECTION COVER
38	SJT783	003 410 6001 7	CONTACT	ACCESSORIES			
39	SJS5331	003 400 5924 3	CONNECTOR	A1	SQF12846	016 983 5116 6	INSTRUCTION BOOK M
39	SJS5523	003 400 5916 3	CONNECTOR	A3	SSA269	002 390 0864 9	COAD
39	SJS5811	003 400 5930 5	CONNECTOR	A4	SJY5018-1	016 652 0166 0	ADAPTOR
40	SJS5215	003 400 5923 4	CONNECTOR				
40	SJT3213	003 410 6011 5	CONNECTOR				
40	SJT3319	003 403 3892 7	CONNECTOR				
40	SJT3511	003 403 3893 6	CONNECTOR				
40	SJT3809	003 410 6013 3	CONNECTOR				
41	SJT785	003 410 6015 1	CONTACT				
42	SJS5337	003 400 5925 2	CONNECTOR				
43	SJT30540LX-V	003 410 5996 1	CONNECTOR				
43	SJT30640LX-V	003 410 6149 8	CONNECTOR				
SCREWS, WASHERS & NUTS							
N1	SNE4021	005 507 0372 5	NUT				
N2	SNE2120	005 500 5609 8	SCREW				
N3	XTB3*8G	005 501 2607 7	SCREW				
N4	XTB3*8JFR	005 501 3433 7	SCREW				
N5	XTB3*8JFZ1	005 501 2523 0	SCREW				
N6	XTB3*10G	005 501 2647 9	SCREW				
N7	XTB3*10GFR	005 501 3126 5	SCREW				
N8	XTB4*8F	005 501 1608 0	SCREW				
N9	XTB4*12JFZ	005 501 2857 1	SCREW				
N10	XTW3*10T	005 501 0996 9	SCREW				
N11	XTW3*10TFR	005 501 2759 2	SCREW				
N12	XTWS3*10Q	005 501 2293 5	SCREW				
N13	XTB3*8J	005 501 1535 0	SCREW				

EXPLODED VIEW OF CABINET AND CHASSIS



EXPLODED VIEW OF RECORD PLAYER



PACKING

